HONI SOIT QUI MAL Y PENSE
DIEU ET MON DROIT

Agricultural Research Institute

PUSA

TRANSACTIONS

OF THE

AMERICAN ENTOMOLOGICAL SOCIETY.

VOL. XXXV.

HALL OF THE ACADEMY OF NATURAL
SCIENCES OF PHILADELPHIA,
LOGAN SQUARE.

1909.

PRESS OF
P. C. STOCKHAUSEN
PHILADELPHIA

LIST OF PAPERS.

BACK (ERNEST A.).

The Robber-flies of America north of Mexico, belonging to the Subfamilies Leptogastrinnæ and Dasypogoninæ. (Plates II-XII) 137

CAMERON (P.).

A contribution to the knowledge of the Parasitic Hymenoptera of Argentina 419

EWING (H. E.).

New Species of Acarina. (Plates XIII-XVI) 401

FALL (H. C.).

Revision of the species of *Diplotaxis* of the United States. (Plate I) 1

ROHWER (S. A.).

New Hymenoptera from Western United States 99

ERRATA.

Page 107, line 21, *read* closest *for* closets.
" 111, line 17, *read* lucidus *for* licidus.
" 128, bottom line, *read* shining *for* shinging.
" 134, line 7 from bottom, *read* Proctotrypidæ *for* Proctotrepidæ.
" 207, Type *S. tenebrosus* at Brooklyn Institute.
" 262, Type of *C. alleni*, New England Collection of the Boston Society Natural History.
" 275, *C. pulcher*, being "merely deposited for safe keeping," has no Cat. No.

TRANSACTIONS

OF THE

AMERICAN ENTOMOLOGICAL SOCIETY.

VOLUME XXXV.

REVISION OF THE SPECIES OF DIPLOTAXIS OF THE UNITED STATES.

BY H. C. FALL.

The genus *Diplotaxis* was erected by Kirby in 1840, *tristis* being the type species. Only three species of our fauna described by earlier authors are referable to the genus, viz.: the *Mololontha liberta* of Germar (1823), and the *M. sordida* and *M. frondicola* of Say (1825). A little later Blanchard (1850) and Burmeister (1855) described a considerable number of species from both the United States and Mexico, some of them being identical with previously described forms. In 1856 LeConte published his Synopsis of the Melolonthidæ of the United States, in which twenty-nine species are recognized, twenty-three of which are described as new, while five of the species of Blanchard and Burmeister are listed as unrecognized. This paper still furnishes the basis for the arrangement of species in our present lists, as, aside from some isolated descriptions, the genus has received no attention from our systematists of later years. That such attention is much needed has for some time been apparent, for with the gradual accumulation of material from the West, especially from our Southwestern border region, the new forms have become as numerous as those previously described, and the total number of species does not fall far short of being as great as in *Lachnosterna*.

The generic characters of *Diplotaxis* have been sufficiently set forth in the books and need not here be given in detail. Briefly stated, the more important ones are as follows:

Ligula connate with the mentum; apical margin of prothorax with membranous border; ventral segments subconnate, but with distinct sutures, five in number, the sixth not normally visible, the fifth connate with the propygidium without suture; pygidium small, middle and hind tibiæ with two spurs, tarsi with distinct bisetose onychium and equal claws, the latter variably toothed; anterior coxæ conical and prominent.

In the LeConte and Horn classification the tribe *Diplotaxini* comprises four genera, *Orsonyx*, *Diazus*, *Diplotaxis* and *Alobus*. Of these *Orsonyx* is founded on a secondary sexual character of the male and is therefore untenable; the female is a normal *Diplotaxis*. The unique type of *Alobus* looks greatly like *Diplotaxis harperi*, and is probably only an abnormal specimen of that species. *Diazus* is based on a single rather small species with simple claws and 9-jointed antennæ. We have one species of *Diplotaxis* with 9-jointed antennæ, but none with simple claws. The genus may be considered valid though not very securely founded.

The tabulation of a genus of nearly one hundred species is bound to present some difficulties, which are lessened in proportion to the possibility of splitting up the mass into sharply defined smaller groups. LeConte attempted to do this in the synopsis above cited, depending chiefly on the position of the ungual tooth, the prominence of the posterior abdominal spiracle, and the form of the clypeus. His success was only moderate, even with the relatively small number of species treated. In the much larger series now involved I have vainly attempted to separate the species into natural groups, neither the characters used by LeConte nor any that I can discern permitting its accomplishment. There seems to be an entire lack of definite association of taxonomic characters, which are so completely intercurrent that it is virtually correct to say that if any one of these common to a considerable number of species be selected as a point of departure, all of the others will be represented in the group of species thus segregated. Of the basic characters used by LeConte the degree of prominence of the posterior spiracle appears to me to be of no use whatever. On the other hand, the position and form of the ungual tooth, and the form of the clypeus are of prime importance. To these I would add a third of nearly equal value, viz.: the structure of the mentum. Of these, the first named is least subject to individual variation, but taken throughout the series there is a complete gradation from one extreme to the other, and its use is therefore impracticable as a group character. The form of the clypeus while very useful, varies not infrequently within specific limits to a confusing degree; here, too, there is every intermediate form between the extremes. The form of the mentum is especially serviceable in certain parts of the series, but it also possesses in greater or less degree the failings of the other two. In the absence of group characters it has been found convenient to place at the beginning of the series those species which have the upper surface wholly or in part hairy or pubescent. They do not constitute a natural group, but the character being a perfectly definite one, tabulation is thus facilitated. Some preliminary discussion of certain structural details and of the significance of certain terms used may aid the student in his use of the table and in reading the descriptions which follow.

With the single exception of *abnormis* (with 9-jointed antennæ) all the known species of this genus have the antennæ 10-jointed. These organs are monotonously similar in structure throughout the genus, and have yielded no specific characters. There are, it is true, some—usually slight—differences discernible in the relative lengths of club and stem, but these have not been thought of sufficient moment to describe. The labrum is usually broadly arcuately emarginate, and is to be so understood when not otherwise described. In *mœrens* and *peninsularis* the emargination is much deeper, and in *popino*, *mimosæ* and *cribrulosa* of the hairy species, and *knausii* and *fissilabris* of the glabrous ones this organ is so deeply divided as to merit the term bilobed. The two last named species are further remarkable in that the mentum is also excavate in front. In the majority of species the elytra possess a more or less minute granulato-reticulate sculpture, for which for brevity, I have used the term alutaceous throughout the descriptions. The pronotum is frequently similarly sculptured though usually less distinctly so. In a few species (*villosa*, *puberula*, *cephalotes*, *bidentata*) the upper surface is polished throughout, while in a larger number (*brevisetosa*, *levicoxa*, *dentella*, *frontalis*, *excavata*, *brevidens*, *acerba*, *pubipes*, *basalis*, *errans*) the fine sculpture is very feeble or barely detectable with a one-fourth-inch triplet. The elytra are always punctate-striate in nine rows, of which the second and third and also the fourth and fifth—counting from the suture—are paired, owing to the greater width of intervals 2–4–6, and have often been referred to as the geminate striæ. The third and fifth intervals—those included between the geminate striæ—are frequently a little more convex, and constitute the so called discal costæ. For the sake of uniformity this term has been used in descriptions of all species, though in many these intervals are not in the least costiform. The broader intervals 2–4–6 have been called the first, second, and third intercostal spaces. Of these, the first is always the widest, and is invariably confusedly punctate; the second and third are less wide, and usually with the punctuation more or less irregular, often almost as conspicuously so as in the first (*tristis*, *liberta*, *harperi*, *frondicola*, *truncatella*, *thoracica* and many others); in rare instances (notably in *dentipes*, *subangulata*, *trementina* and *tenuis*) the punctures of the second and third intercostal spaces are disposed in a single nearly regular row on each, though there is some individual variation in this respect. The narrow intervals, 1–3–5–7–8–9, have with rare exceptions (*sordida*, *schaefferi*) each a single series of fine punctures, except the sutural, on which the series is usually less regular. In a few species the punctures of the narrower intervals are nearly as coarse as those of the striæ and of the broader intervals. In *levicosta* and *atratula* the narrow intervals are almost devoid of punctures, and in several others they are few and widely spaced. A somewhat trifling character, but one which is very persistent throughout the genus, exists in a more or less obvious impression along the seventh stria at or before the middle. No reference has been made to this in the descriptions, but as an illustration of variation in position of the impression the well-known species *tristis* and *liberta* may be cited; in the former it is very nearly at the middle of the elytra, while in the latter it is just behind the humeral umbone. The apical marginal groove of the propygidium is another character so generally present, that reference is rarely made to it, except in the few species in which it is feeble or absent. In many species the second ventral segment and sometimes the third and fourth exhibit at the middle a more or less obvious series of short parallel ridges or grooves, which in a smaller number of species (e. g., *knausii*, *brevicollis*, *lævicoxa*, *haydenii*) are replaced or accompanied by an obtuse, more or less plicate tubercle on each side of the middle. This sculpture varies greatly in development in individuals of the same species and is possibly in some degree sexual; and because of this variability little or no mention has been made of it in the descriptions. The variations in the structure of the mentum will be best appreciated by an examination of a few of the typical forms, while the differences in the form of the clypeus and claws are fairly well shown by the outline figures of the plate.

Secondary sexual characters are not entirely wanting, but with a few exceptions they are of such a nature that it is rarely possible to determine the sex of a single specimen, and even in a considerable series containing both sexes, they can rarely be separated with certainty. If from a series of specimens of almost any species, those having the most slender and the most robust hind femora be selected, the former are almost sure to be males and the latter females; but the differences are often very slight, and even when more pronounced there are usually intermediates which to all appearances seem as likely to belong to one series as the other. In addition to this general distinction the following special sexual differences have been observed, the characters in all cases pertaining to the males.

Terminal joint of maxillary palpi more broadly dilated—*bowditchi*, *brevidens*, *tarsalis*.

Antennal club a little more elongate—*bowditchi*. This has not been carefully investigated and there are probably others.

Eyes larger—*schaefferi*, *confusa*. There are probably others.

Clypeal angles more distinctly defined—*ambigua.*

Abdomen flattened and usually more hairy—*brevidens, illustris, thoracica.*

Basal joint of anterior tarsus stouter—*knausii.*

Femora and tibiæ (in part) more hairy within—*brevidens, illustris.*

Tarsi more densely pubescent—*ambigua, pubipes, thoracica dubia.*

Claws longer or differently toothed—*schaefferi, anxius, planidens* (probably). There is a slight tendency for the claws to be a little stouter in the females generally.

The male genitalia are quite simple so far as examined, while in the female they are entirely membranous and therefore useless for comparison. I have therefore not attempted systematic dissection, but leave this phase of the subject for the student who has the material and the time for its investigation.

The genus is very widely dispersed in North America, and occurs in every part of our territory; it reaches its maximum development, however, in the warmer and dryer regions of the Sonoran province. Of the 95 species recognized in the present paper, 50 occur in New Mexico and Arizona, while Arizona alone possesses 38. Three species only—*tristis, sordida* and *liberta*—are known from Quebec and Ontario, while from western British America there are but four thus far recorded, viz.: *brevicollis, obscura, residua* and *subangulata.* All of these are Rocky Mountain species, and with the exception of *obscura,* none of them has been found at any considerable distance from our northern boundary. *Obscura* has been collected by Mr. Frederick Knab in the Saskatchewan region, and the types of *tristis* were taken in latitude 54°.

Coming to our own territory, it will be interesting to present in list form the species occurring in a considerable number of States. These lists will not only be useful to the student of distribution, but will also show at a glance the species which the collector may expect to find in any given locality. Starred species are known only from the region indicated.

New England.

atlantis
liberta
tristis
sordida
rugosioides

Three of these species have long been known from New England. *Atlantis* has heretofore been confused with *tristis* in most collections. The standing of *rugosioides* is doubtful, and it will very likely prove to be only an aberrant *sordida.*

New Jersey — Pennsylvania.

atlantis
liberta
sordida
tristis
frondicola
harperi
bidentata
excavata
subcostata

Here are all the New England species—*rugosioides* excepted—plus two others, which are more or less common residents of this region. The species in the last column are South Atlantic Coast forms whose occurrence so far north is exceptional, or perhaps accidental.

Washington, D. C.

atlantis
liberta
sordida
tristis
frondicola
harperi

The Carolinas and Georgia.

liberta
sordida
rugosioides
frondicola
harperi
excavata
frontalis
**densicollis* (S. C.)
subcostata
bidentata (Ga.)
languida (Ga.)

Florida.

harperi
excavata
frontalis
bidentata
subcostata
**rufa*
languida

Alabama.

frondicola
harperi
subcostata

Louisiana.

frondicola
harperi
excavata
lengii

Western Pennsylvania.

frondicola
liberta

Ohio (Cincinnati).

frondicola
harperi

Michigan.

sordida
tristis
harperi

Illinois.

frondicola
harperi
**cephalotes* (So. Ill.)

Iowa.

frondicola
harperi
liberta

Missouri.

frondicola
harperi
bowditchi

Kansas.

tristis
frondicola
harperi
basalis
truncatula
haydenii
subangulata var.

If there is no error in locality, this must represent the extreme western limit of *tristis*. *Truncatula* is more abundant in Texas, while *haydenii* and *subangulata* are at the eastern limit of their range.

Texas.

**acerba*
ænea
belfragei
**beyeri*
**brevisetosa*
**curvaticeps*
**dubia*
**errans*
frondicola
harperi
lengii
**maura*
mentalis
**muricata*
**pinguescens*
**puberula*
**pubipes*
punctata
**punctipennis*
**schaefferi*
**sparsesetosa*
subangulata var.
subcostata
sulcatula
**texana*
**thoracica*
truncatula
**villosa*

Northern Rockies, Montana, Idaho, Wyoming.

brevicollis
haydenii
obscura
residua (Id.)
tenebrosa

Colorado.

*basalis
brevicollis
carbonata
conformis
haydenii
obscura
parallela
parvicollis
rufiola

Arizona.

abnormis
*ambigua
*angularis
anxius
*arcuata
*arizonica
brevicollis
*brevidens
carbonata
*chiricahuæ
conformis
*connata
corvina
*costulata
*dentella
*fissilabris
*fossipalpa
haydenii
*illustris
*ingenua
knausii
levicoxa
macronympha
marginicollis
*misella
*mœrens
obscura
pacata
*planidens
*popino
*pumila
rufiola
*semifoveata
subangulata var.
sulcatula
*tarsalis
tenuis
trementina

Utah and Nevada.

anxius
*insignis
knausii
levicoxa
mœrens
obscura v. compacta
obscura v. prominens
sierræ
subangulata v. californica
tenebrosa

California.

brevicollis
corvina
*fimbriata
levicoxa
mœrens
pacata
sierræ
subangulata v. californica
tenebrosa
tenuis

New Mexico.

abnormis
*_atratula_
belfragei v. _sinuata_
brevicollis
carbonata
*_cribrulosa_
haydenii
*_hispida_
*_levicosta_
macronycha
marginicollis
mentalis
obscura v. _prominens_
parallela
parvicollis
popino
punctata
rufiola
subangulata var.
sulcatula
trementina
truncatula

None of these belong to the true coast fauna, and with the exception of _subangulata_ none have occurred west of the Sierras.

Washington and Oregon.

brevicollis
obscura
subangulata
tenebrosa

Further collecting is almost sure to add to the lists of almost any of the above western localities, but little or no increase can be expected in the Atlantic district. Thirty-four species are given in the "Biologia" as inhabiting Mexico and Central America, but this is surely only a fraction of the species occurring there. Whether any of the species described from our southwestern region are identical with the Mexican ones is not possible to say with certainty, but the probability is not very great.

In concluding these preliminary remarks I wish to thankfully acknowledge the very ready and generous response from all correspondents to requests for specimens or information. The very large material of the National Museum and Horn collections have been loaned for study, and there has also been placed in my hands the material contained in most of the larger private collections of this country, viz.: that of Messrs. Blanchard, Bowditch, Leng, Beyer, Schaeffer, Liebeck, Dury, Wickham, Knaus, Fenyes, Blaisdell and Van Dyke. Finally, to Mr. Samuel Henshaw I am under renewed obligations for permission to study the LeConte types at the Cambridge Museum, without which anything like satisfactory progress would have been impossible.

TABLE OF SPECIES

Upper surface pubescent or hairy 2

Upper surface glabrous, or virtually so 7.

2. Head with occipital smooth space, sides of prothorax sinuate anteriorly, the front angles prominent and acute, punctuation of elytra extremely dense

Pubescence of upper surface fulvous, dense and moderately long on the head and prothorax, shorter on the elytra posteriorly 1 **sordida.**

Pubescence of upper surface sparser, grayish, erect, but excessively short throughout 2. **rugosiodes.**

Head without occipital smooth space, sides of prothorax not or scarcely sinuate anteriorly, the angles not at all, or but slightly prominent, punctuation of elytra normal 3.

3 Labrum deeply impressed or bilobed, pubescence long, fine, erect, ventral segments margined at sides—at least in part, strial punctures of elytra nude

Ventral segments completely margined, clypeal angles well defined but not dentiform, there being no distinct external sinuation, prothorax rather densely punctate and somewhat uneven, size smaller (6-8 mm), color varying from black to brown 3. **mimosæ.**

Ventral segments 1-3 margined at sides, clypeal angles dentiform or subdentiform, the external sinuation distinct, prothorax less closely punctate, the surface not evidently uneven, size usually larger (7-10 mm), color brown or reddish brown 4 **popino.**

Clypeal angles not dentiform, the margin squarely truncate at middle with faint trace of median sinuation but no external sinus, prothorax still less closely but more coarsely punctate, pubescence sparser, length 8 mm , color brown 5 **cribrulosa.**

Labrum feebly or moderately arcuate emarginate, pubescence short, ventral segments not margined at sides except in *arizonica* 4

4 Clypeal angles dentiform, the external sinuation strong, strial punctures of elytra setiferous, like those of the intervals

Pubescence erect, thorax widest near the middle, size smaller (7-8 mm) 6 **arizonica.**

Pubescence recumbent, thorax widest at base, size larger (11-12 mm) 7 **bowditchi.**

Clypeal angles not dentiform, no external sinuation 5

5 Tooth of claw subapical, but little shorter than the superior portion of the claw

Pubescence erect or suberect; prothorax widest a little before the base; upper tooth of front tibia nearly twice as distant from the base as from the apical tooth; strial punctures of elytra setiferous.

Prothorax coarsely punctured, the punctures fully as coarse as those of the elytra; clypeus truncate or truncato-emarginate .. 8 **villosa.**

Prothorax finely more densely punctured, the punctures finer than those of the elytra; clypeus arcuate or more narrowly truncate .. 9. **puberula.**

Pubescence much inclined; prothorax widest just before the middle; upper tooth of front tibia midway between the base and apex; clypeal margin arcuate or subtruncate at middle, the angles rounded; strial punctures of elytra nude 10. **brevisetosa.**

Tooth of claw post median in position, but much shorter than the superior portion of the claw; strial punctures nude 6

6. Clypeal suture more or less distinct, hairs of upper surface longer and more numerous.

Punctuation of upper surface coarser and denser, the elytral costæ scarcely evident; abdomen coarsely closely punctate throughout; first joint of hind tarsus nearly or quite as wide as long 11. **muricata.**

Punctuation of upper surface less coarse and dense; elytral costæ better defined, abdomen sparsely and finely punctate at middle, coarsely and closely at sides; basal joint of hind tarsus nearly twice as long as wide 12. **hispida.**

Clypeal suture wanting, hairs of upper surface very short and sparse, elytral costæ distinctly defined. 13. **sparsesetosa.**

7. Labrum broadly arcuately emarginate, rarely more deeply impressed (*mœrens*, *peninsularis*), mentum not excavated in front 8.

Labrum deeply divided (bilobed), mentum excavated in front

Front distinctly triangularly impressed, ventral segments more or less tuberculate, basal joint of front tarsi in the male strongly dilated, much wider than the second. 14. **knausii.**

Front feebly or scarcely impressed, ventral segments not tuberculate, but with a series of short parallel rugæ on segments 2–4 in the male; basal joint of front tarsus (male) not wider than the second. 15. **fissilabris.**

8. Mentum broadly convex or nearly flat, not at all concave, and at most but feebly declivous in front; transverse raised line either entirely absent or extremely faintly indicated 9.

Mentum horizontal, nearly flat posteriorly, becoming rather strongly concave in front, without trace of transverse ridge, the setæ at most short and inconspicuous, often wanting, thoracic angles usually impressed . . 11.

Mentum feebly oblique behind, strongly declivous in front, the declivity more or less concave from side to side, its margin posteriorly arcuate and convex, but without raised line (except feebly in *sierræ*); thoracic angles not impressed 12.

Mentum horizontal or subhorizontal and nearly flat posteriorly, more or less declivous in front, the declivity margined by a more or less acute arcuate raised line and a row of erect setæ, the raised line sometimes rather ill defined or even obsolete (more especially so in *ingenua*, *lengii*, *basalis*, *pumila*, *angularis*, *misella*, and *tenuis*) . 13.

9. Ungual tooth subapical, claws larger in the male, elytral costæ with more or less confused punctuation 16. **schaefferi.**

Ungual tooth median or moderately post-median, claws not different in the sexes; elytral costæ each with a single row of punctures . .10.

10. Clypeus with sub-basal ridge or convexity extending from side to side, making the clypeal suture seem strongly impressed; mentum convex along the basal and lateral margins, not declivous in front, the transverse ridge absent and the accompanying setigerous punctures nearly or quite wanting; terminal joint of maxillary palpi fully, or more than three times as long as wide 17. **mentalis.**

Clypeus nearly flat, the basal ridge at most but feebly defined; mentum with transverse row of setigerous punctures (the setæ often in part wanting), in front of which the surface is feebly declivous.

Form less robust, prothorax widest near the middle, tooth of claw only slightly post-median.

Mentum broadly subconvex, scarcely declivous in front; front more finely and sparsely punctate than the clypeus. 18. **conformis.**

Mentum more obviously declivous anteriorly; front and clypeus similarly punctate; clypeal margin more broadly reflexed. 19. **residua.**

Form more robust, prothorax not or very slightly narrowed behind; tooth of claw more strongly post-median; terminal joint of maxillary palpus barely twice as long as wide. 20. **tenebrosa.**

11. Punctuation of upper surface rather dense 21. **costulata.**

Punctuation rather fine and much sparser. •

Front angles of prothorax distinctly impressed, the hind angles also impressed, but usually less strongly; size large (12–14 mm.) .. .. . **22. brevicollis.**

Front angles of prothorax a little impressed, the hind angles not obviously so; size smaller (9–10 mm.). **23. semifoveata.**

Angles of prothorax not impressed; size smaller (8½–10½ mm.). **24. parvicollis.**

12. Mentum without trace of acute transverse ridge; margin of declivity without erect setæ, at least at middle; hind thighs nearly or quite impunctate between the submarginal rows of setigerous punctures.

Anterior declivity of mentum beginning at apical two-fifths or one-third; tooth of claw nearly median in position.

Hind coxæ nearly or quite impunctate **25. levicoxa.**

Hind coxæ punctate, at least in outer half.

Prothorax with more or less distinct impressed line along the anterior margin; front angles rather prominent and acute; color red brown **26. haydenii.**

Prothorax without impressed apical marginal line; front angles not prominent.

Prothorax less coarsely and densely punctate, elytral punctuation less broadly confused; size smaller, color dark brown or black (Southern Arizona) **27. dentella.**

Prothorax more coarsely and densely punctate, elytral punctuation more broadly confused, size larger, color rufoferruginous in the unique type (Salt Lake Desert). **28. insignis.**

Anterior declivity of mentum beginning at the middle of its length; tooth of claw slightly, but obviously post-median. **29. belfragei.**

Mentum with row of erect setæ along the summit of the declivity, the transverse arcuate raised line also indicated in *sierræ*, hind thighs irregularly punctate between the submarginal rows of punctures

Form stouter, less than twice as long as wide

Ungual tooth subapical in position, punctuation beneath sparser and finer (Atlantic region) **30. atlantis.**

Ungual tooth only slightly post-median; punctuation beneath much coarser and closer (California and Nevada). **31. sierræ.**

Form oblong, parallel, more than twice as long as wide (Rocky Mountains of New Mexico and Colorado). **32. parallela.**

13. Thoracic angles not impressed .... 14.

Thoracic angles more or less impressed.

Impressions within the thoracic angles well marked, hind thighs very sparsely and finely punctate at middle; size smaller; (Rocky Mountain region) . . 33. **obscura.**
var. **prominens,** var. **compacta.**

Impressions within the thoracic angles not very distinct; hind thighs more coarsely and conspicuously punctate at middle; size larger (Atlantic region).

Prothorax more finely and evenly punctate; color black, without trace of metallic lustre 34. **tristis.**

Prothorax more coarsely and quite irregularly punctate; elytra often with violaceous lustre 35. **liberta.**

14. Sides of prothorax not distinctly bisinuate (except in some examples of *densicollis* and *fossipalpa* 15.

Sides of prothorax more or less bisinuate, the anterior sinuation slight or wanting in some examples of *rufa.*

Size larger (9–11 mm.); punctuation of head and thorax finer and sparser; pygidium with shallow median longitudinal impressed line; prosternal carina double. .36 **subcostata.**

Size smaller (8–9 mm.); punctuation of head and prothorax relatively coarser and closer; pygidium not impressed; prosternal carina single 37. **rufa.**

15 Front with at most a very broad and feeble post-clypeal convexity, usually flat or uniformly convex 17.

Front with moderate or strong post-clypeal convexity 16

16 Post-clypeal convexity more or less impressed or interrupted at middle; elytra coarsely densely punctate; clypeal margin rotundate. Atlantic region

Basal margin of thorax not or scarcely impressed toward the hind angles 38. **frontalis.**

Basal margin of thorax rather strongly impressed, especially toward the sides

Punctuation of thorax rather sparse, at least at middle, the punctures separated by from one to two times their own diameters 39 **excavata.**

Punctuation of thorax extremely dense and rugulose.
40 **densicollis.**

Post-clypeal convexity not impressed at middle, the surface behind the convexity feebly or distinctly biimpressed; elytral punctuation moderate; clypeal margin feebly sinuate at middle (Rocky Mountain region)

Surface more shining, sides of prothorax more strongly rounded, clypeus more advanced, elytral costæ with the usual single series of finer punctures 41. **subangulata.**

Surface less shining; sides of prothorax less strongly rounded, clypeus less prominent, elytral costæ almost devoid of punctures 42. **atratula.**

17. Metasternum normally long, elytra not connate, body winged .18.

Metasternum short, its length between the coxæ not or but little longer than the length of the second ventral segment; elytra apparently connate, wings probably undeveloped.

Robust, much less than twice as long as wide, claws rather small, the tooth subapical 43. **connata.**

Elongate, rather more than twice as long as wide, the claws slender and unusually long, the tooth sub-median. 44. **macronycha.**

18. Ungual tooth post-median in position, usually strongly so .19.

Ungual tooth short, nearly perpendicular to the claw and almost exactly median in position.

Clypeus rotundate, body stouter, oblong ovate.

Prothorax more finely not very densely punctate, disk with two confluent impressions which are sometimes wanting or feebly indicated; margin of body not conspicuously fimbriate; hind tarsi moderately slender 45. **pacata.**

Prothorax coarsely densely punctate, disk not impressed, side margins of thorax and elytra fimbriate with long hairs; hind tarsi stout 46. **fimbriata.**

Clypeus sinuate at middle; form oblong, moderately elongate.

Sides of thorax not perceptibly sinuate, head but slightly more than half as wide as the thorax, impression of terminal joint of maxillary palpi of normal size, and not extending beyond the middle . . 47 **brevidens.**

Sides of thorax distinctly sinuate, both before and behind; head about three-fifths as wide as the prothorax; impression of terminal joint of maxillary palpi deep and extending almost from base to apex 48. **fossipalpa.**

19. Clypeal margin more or less sinuato-emarginate at middle, sometimes very feebly or barely visibly so (*corvina*, *carbonata*, *rufiola*, *thoracica*), the angles usually broadly rounded (less broadly so in *pubipes*) .20

Clypeal margin convex in outline from side to side, or with the middle truncate or subtruncate for a short distance, but not at all sinuate (except in occasional specimens of *harperi*) 34.

Clypeal margin more or less distinctly angulate each side of the median sinuation or truncation (except in some examples of *polita*) 39.

20. Ungual tooth post-median, but distinctly shorter than the superior portion of the claw .... 21.

Ungual tooth apical or subapical, the claw having the appearance of being cleft at or a little behind the tip, the inner portion (tooth) being nearly always broader and more or less obliquely truncate . . . . . 22.

21. Sides of prothorax strongly subangularly rounded at middle, distinctly sinuate posteriorly, and slightly so anteriorly; lower edge of front and hind femora, the front and hind tibiæ within, and the median line within densely hairy (male) ... 49. **illustris.**

Sides of prothorax less strongly rounded at middle, not sinuate either before or behind, vestiture of legs and abdomen normal.

Clypeal margin broadly reflexed.

Clypeus more deeply sinuate, the suture distinctly impressed, pygidium without impressed line, elytra usually but slightly wider than the thorax 50. **beyeri.**

Clypeus less deeply sinuate, the suture obliterated at middle; pygidium with median impressed line; form usually stouter, less parallel, the elytra behind the middle more obviously wider than the prothorax 51. **sulcatula.**

Clypeal margin very narrowly reflexed.

Labrum deeply emarginate, punctuation of thorax moderate. 52. **mœrens.**

Labrum broadly emarginate, punctuation of thorax unusually coarse 53. **punctipennis.**

22. Sides of prothorax strongly arcuate, much wider at or slightly behind the middle than at base 23.

Sides of prothorax moderately arcuate, very slightly or not at all narrowed behind the middle 26.

23. Tarsi not hairy beneath 24.

Tarsi distinctly hairy beneath in the male, less evidently so in the female .. 25.

24 Claws similarly toothed on all the feet.

Clypeal margin very faintly or scarcely sinuate at middle; front angles of prothorax not at all prominent, upper tooth of front tibiæ slightly post-median

Prothorax lightly but quite evidently longitudinally sulcate at middle; elytral punctuation confused only on the subsutural interspace; size larger (12 mm.), color black 54. **corvina.**

Prothorax without median sulcus, size much smaller (6–7 5 mm.).

Prothorax finely not closely punctate; elytra not closely punctate, the punctures forming nearly regular lines except in the subsutural interspace.

Black or brownish black, prothorax larger, usually more than one-third the length of the elytra. 55. **carbonata.**

Rufotestaceous (castaneous in a form doubtfully referred), prothorax smaller, less than one-third the length of the elytra . . .. . . 56. **rufiola.**

Prothorax more closely and less finely punctate, elytral punctuation coarse, dense and much confused, except for the geminate striæ 57 **acerba.**

Clypeal margin more evidently but very broadly sinuato-emarginate or sinuato-truncate at middle, front angles of thorax slightly prominent, upper tooth of front tibiæ distinctly ante-median, color rufoferruginous 58 **ingenua.**

Claws not all similarly toothed (at least in one sex), tooth of the outer claw of the middle tarsi very large, laminiform, with acute apex 59 **planidens.**

25 Clypeal margin moderately to rather strongly arcuato-emarginate, the angles rather abruptly rounded, front angles of thorax not prominent, upper tooth of front tibiæ sub-median, color brown or piceous 60 **ambigua.**

26 Clypeus tumid, front rather deeply subtriangularly impressed at middle 61 **cephalotes.**

Clypeus flat, or nearly so 27

27 Punctures of head close, usually nearly or quite in mutual contact and often densely crowded 28

Punctures of head well separated, usually by at least their own diameters

Prothorax with apical marginal impressed line, scutellum normal in size and without circumjacent impression, tarsi not pubescent beneath 62 **marginicollis.**

Prothorax without apical impressed line, scutellum small and with a surrounding impression, tarsi densely pubescent beneath 63 **pubipes.**

28 Punctures of elytral disk confused only in the subsutural interspace, elsewhere forming nearly regular rows 64 **trementina.**

Punctures of elytral disk broadly confused, except for the usual geminate striæ 29

29 Interstices of elytral punctures numerously finely punctulate, color black, size large (14 mm.) 65 **punctulata.**

Interstices of elytral punctures nearly or quite devoid of minute punctuation 30

30 Front between the upper portions of the eyes distinctly bi-impressed 31

Front not impressed 32

31 Labrum deeply impressed, prothorax rather densely punctate, dark brown 66 **peninsularis.**

Labrum broadly impressed

Front claws in male cleft, middle and hind claws toothed, all claws toothed in female, prothorax very densely punctate, color brown 67 **anxius.**

Claws similarly toothed in the sexes, prothorax finely sparsely punctate, color black 68 **anthracina.**

32. Upper tooth of front tibia distinctly ante-median in position; hind tarsi scarcely or but very slightly longer than the tibiæ.

Lateral margin of clypeus with a distinct angulation just before the eye, which is at least as prominent as the visible portion of the eye; coarser punctuation at sides of metasternum extending posteriorly barely half way to the median line; color black 69. **maura.**

Lateral margin of clypeus with at most a very feeble prominence close to the eye, which is less prominent than the eye itself; dense lateral punctuation of the metasternum extending fully three-quarters the distance from the side margin to the median line; color brown.

Lateral margin of clypeus with a minute angulation near the eye; form more robust 70. **pinguescens.**

Lateral margin of clypeus devoid of ante-ocular prominence; form less robust.

Basal margin of thorax at most feebly impressed laterally; punctuation denser; upper tooth of front tibiæ strongly ante-median 71. **frondicola.**

Basal margin of thorax quite strongly impressed; the impression narrowed or subinterrupted at middle; punctuation less dense; upper tooth of front tibiæ only slightly ante-median 72 **basalis.**

Upper tooth of front tibia median; hind tarsi in the male much longer than the tibiæ and more hairy beneath 33.

33. Mental ridge feeble or obsolete; prothorax more than one-half wider than long; punctuation rather coarse and sparse, color blackish, usually with trace of æneous surface lustre. 73. **lengii.**

Mental ridge well developed; prothorax less than one-half wider than long; punctuation fine and dense; color ferruginous. 74. **thoracica.**

34 Transverse arcuate ridge of mentum well defined . 35.

Transverse arcuate ridge of mentum ill defined—small species 38.

35. Base of prothorax without marginal impressed line 36.

Base of prothorax distinctly impressed along the margin 37.

36. Antennæ 10-jointed, head not impressed over the eyes; hind angles of thorax obtuse

Front and clypeus closely or densely punctate.

Prothorax distinctly wider at middle than at base; sides rather strongly rounded .. 75. **arcuata.**

Prothorax not narrowed behind the middle, widest at or near the base.

Upper tooth of front tibia about midway between the apical tooth and the base; tarsi more hairy in the male; punctuation of upper surface dense .. .. . .76. **dubia.**

Upper tooth of front tibia about two-thirds as far from the apical tooth as from the base, tarsi not (?) hairy in the male; punctuation of upper surface moderate. 77. **curvaticeps.**

Front sparsely, clypeus more closely but not densely punctate. 78. **bidentata.**

Antennæ 9-jointed, head usually with an elongate impression above each eye; prothorax widest at base, the sides subsinuate before the basal angles, which are a little acute as viewed from above 79. **abnormis.**

37. Basal marginal line of thorax not or scarcely narrowed at middle; transverse raised line of mentum at about the anterior third. 80. **harperi.**

Basal marginal line of thorax distinctly narrowed or subinterrupted at middle; raised line of mentum at or about the middle of its length 81. **texana.**

38. Pale rufotestaceous, clypeal margin arcuate from side to side (Florida) 82. **languida.**

Ferruginous or brown, clypeal margin truncate at middle, size still smaller (Arizona) 83 **pumila.**

39. Tarsal joints clothed beneath toward their apices with dense fulvous hair; terminal joint of maxillary palpus dilated in the male; clypeal angles prominent, subdentiform, the external sinuation either feeble or distinct; sides of prothorax broadly subangulate at middle, convergent and nearly straight in front, parallel and nearly straight posteriorly 84 **tarsalis.**

Tarsal joints not conspicuously hairy beneath; maxillary palpi not differing in the sexes (so far as known) 40.

40. Elytral punctuation confused on all the intercostal spaces (except in some examples of *confusa*); mental declivity usually distinctly margined behind, size somewhat larger, color rufotestaceous to piceous 41

Elytral punctuation confused only on the subsutural interspace, elsewhere arranged in nearly regular series; mental declivity feebly defined, not margined behind; propygidium without apical groove; size smaller, color rufotestaceous. 43.

41 Elytra without minute alutaceous sculpture, the surface like that of the prothorax polished and strongly shining 85 **polita.**

Elytra with fine or minute alutaceous sculpture 42.

42. Clypeus very broadly reflexed, the angles not prominent but with a well marked external sinuation; front tibiæ very broad and stout, the upper tooth strongly post-median in position; prothorax widest at or even slightly in advance of the middle 86. **errans.**

Clypeal angles rather sharply defined, but not prominent or dentiform, without or with but slight trace of external sinuation; ventral segments margined at sides (except in *chiricahuæ*).

Prothorax widest near the base, sides broadly arcuate. 87. **truncatula.**

Prothorax widest at or but little behind the middle.

Eyes moderate; clypeal margin feebly or scarcely sinuate between the angles; color normally piceous brown. 88. **punctata.**

Eyes large, clypeal margin more evidently sinuate between the angles, which are in consequence more sharply defined; color rufotestaceous 89. **chiricahuæ.**

Clypeal angles prominent and subdentiform, the external sinuation distinct; ventral segments not margined at sides.

Rufotestaceous, punctuation finer and less dense.

Eyes separated on the front by a distance fully five times as great as the width of the eye as seen from the front; elytral costæ almost completely impunctate, except on the declivity; prothorax strongly transverse 90. **levicosta.**

Eyes separated on the front by a distance which at most but slightly exceeds three times their own width; elytral costæ with the usual series of fine punctures, prothorax moderately transverse.

Front rather strongly impressed or concave at middle; eyes separated on the front by two to three times their own width; prothorax more than one-half wider than long; elytra one-quarter longer than wide, and two and one-half times as long as the prothorax 91. **confusa.**

Front evenly and broadly convex, eyes separated on the front by three and one-third times their own width; prothorax slightly less than one-half wider than long, elytra one-half longer than wide and three times as long as the prothorax. 92. **angularis.**

Black, elytra brownish, upper surface with distinct viridiæneous lustre; punctuation of elytra coarser and denser. 93 **ænea.**

43. Interocular width of front about three times the width of the eye; terminal joint of maxillary palpi three-quarters the length of the antennal club; prothorax coarsely punctate; abdomen moderate punctate 94. **misella.**

Interocular width of front about six times the width of the eye; terminal joints of maxillary palpi nearly as long as the antennal club; prothorax not coarsely punctate, ventral segments with very few punctures . . . 95 **tenuis.**

1. **D. sordida** Say.

Blackish brown, more rarely reddish brown, clothed above with short erect or suberect hair, which is longer, denser, and more brightly fulvous on the head, prothorax, and around the scutellum; shorter and more grayish elsewhere on the elytra. Punctuation rather fine but very dense throughout, the elytral costæ obsolete or but feebly indicated. Clypeus broadly sinuate emarginate, head with transverse occipital smooth space. Sides of prothorax sinuate in front, the angles prominent and acute; hind angles distinct and nearly rectangular as viewed from above. Length 10–12 mm.; width 5.1–6.2 mm.

This well-known species needs no more extended description. The uniformly dense punctuation of the elytra, as well as the occipital smooth space are peculiar to this and the following species. There appear to be no secondary sexual characters aside from the somewhat stouter hind thighs of the female.

Sordida is most frequently taken in the maritime regions of the North Atlantic States but seems nowhere very abundant. The following States are represented in the material at hand; Maine, New Hampshire, Massachusetts, New Jersey, Maryland, Virginia, North Carolina, Michigan (Marquette). LeConte gives also Pennsylvania and Georgia.

2. **D. rugosioides** Schf.

Almost precisely like *sordida*, except that the pubescence of the head and prothorax is not longer than that of the elytra, being exceedingly short and grayish in color throughout.

The type is from Hampton, New Hampshire. Two examples sent me by Mr. Leng labeled "So. Pines, N. C." answer well Schaeffer's description. In one of these there are large discal impunctate areas on the pronotum, which are scarcely at all indicated in the other. The species is not represented in any other of the numerous collections sent me, and notwithstanding its different appearance, it is not unlikely that it will prove to be only a variety or aberration of *sordida.*

3. **D. mimosæ** n. sp.

Variable in color from reddish brown to dark brown or nearly black, entire upper surface clothed rather plentifully with fine erect hairs averaging in length about two-thirds or three-quarters the width of the scutellum; prothorax and elytra minutely alutaceous. Labrum very deeply impressed Mentum horizontal, scarcely declivous in front, a transverse row of long setæ, but without trace of accompanying ridge except in rare instances Head densely punctate, clypeal margin truncate or slightly sinuate at middle, the angles rather sharply defined but obtuse, without or with only a slight external sinuation, clypeal suture distinct at sides, usually faint or subobsolete at middle, front broadly feebly impressed at middle, behind the clypeal suture Prothorax three-fifths wider than long, widest at or just behind the middle, where the sides are rather strongly rounded margin often with a slight sinuation behind the front angles, the latter distinct but not prominent, hind angles obtuse but well defined, surface densely but usually a little unevenly punctured Elytra one third wider than the prothorax and about two and three quarter times as long, wider behind, punctuation rather dense throughout, confused between the pairs of geminate striæ which inclose the very faint discal costæ, but arranged in nearly regular series at the sides Beneath sparsely hairy, metasternum rather coarsely and closely punctate at sides abdomen moderately punctate and with a sharply defined raised line separating the ventral and dorsal surfaces Propygidium with well defined apical marginal groove Ungual tooth subapical broadly truncate at tip Length 6 2–8 mm , width 3 4–4 2 mm

This species occurs in southeastern Arizona Hubbard and Schwarz found it plentiful at Oracle and in the Santa Rita Mountains in June and July on "*Mimosa* sp " It was taken by Mr Beyer in the Rincon Mountains, and is present in several other collections with the simple label "Arizona " Though very closely related to the following species, it is separated readily enough with a little care by the tabular characters

There is in the LeConte collection a specimen of this species bearing label "*popino* type ' in Casey's handwriting I have no doubt, however, that this was inadvertently mixed with his specimens of the following species, which is the one to which his description best applies and of which the type in his own collection is probably a representative

4 **D. popino** Csy

Form and vestiture as in *mimosæ* color reddish brown to castaneous Labrum deeply emarginate (bilobed) Clypeal margin broadly sinuate at middle, the limiting angles rather prominent and dentiform, the sinuation on the outer side usually well marked Punctuation similar to that in the preceding species but somewhat less dense, alutaceous sculpture of prothorax less evident and sometimes nearly or quite absent. Elevated line separating ventral and dorsal segments distinct basally, disappearing on the last two segments. Propygidial apical groove feeble. Length 7–10 mm.

Specimens at hand are all from southern Arizona (Tucson, Nogales, Florence, Oracle, Santa Rita and Huachaca Mountains), except two in the Horn collection which bear label "N. M."

Very similar to *mimosæ* but larger and apparently always of some shade of reddish brown in color, while the large majority of *mimosæ* are blackish. The prominent clypeal angles and less dense punctuation are also fairly characteristic. From all our other hairy species, except *mimosæ* and *cribrulosa*, *popino* is at once distinguished by the bilobed labrum.

5. **D. cribrulosa** Lec.

Brown, sparsely hairy; labrum deeply impressed. Mentum feebly declivous in front from about the apical two-fifths, posterior margin of declivity slightly prominent and with the usual setæ. Clypeus squarely truncate in front with faint trace of median sinuation, not visibly sinuate at sides. Head densely punctate; prothorax quite coarsely and sparsely so, the punctures separated by two or three times their own diameters at middle, and by their own diameters at sides. Elytra coarsely rather closely punctate, the punctures of the costæ also strong and close. Punctuation beneath rather sparse. Length 8 mm.; width 4.5 mm.

Habitat.—"Frontera on the Rio Grande."

The unique type in the LeConte collection evidently represents a hairy species, though pretty completely denuded. The color, form, size and sculpture strongly suggest *popino*, with which species it also appears to agree in having the dorsal and ventral portions of the first three abdominal segments separated by a raised line; the clypeus differs from *popino* in being squarely truncate, the angles not at all dentiform; the thoracic punctuation is, I think, a little coarser and sparser, and the pubescence appears to be less plentiful, though of this it is not possible to speak with certainty. None of these characters are of much weight and it is not unlikely that the two are forms of a single species.

6. **D. arizonica** Schf.

Oblong, a little wider behind, dark brown, moderately shining, prothorax and elytra minutely alutaceous, each elytral puncture bearing a short suberect hair, averaging in length about one-sixth the width of the scutellum. Labrum distinctly arcuate emarginate, the lateral angles a little reflexed and thus more prominent than usual. Mentum with transverse row of five to seven setæ, the accompanying raised line feeble or obsolete. Head and clypeus closely punctate, the latter reflexed, emarginate at middle, angles dentiform, the outer sinuation short but strong, clypeal suture straight, immediately behind it a faint transverse elevation in some specimens. Prothorax a little less than twice as wide as long, widest just behind the middle, sides moderately strongly arcuate, scarcely sinuate anteriorly, but faintly so before the base angles, which are obtuse but defined, front angles evidently acute but not prominent, disk finely, evenly, closely but not densely punctate, the lateral foveæ small. Elytra one-half wider and three times as long as the prothorax, punctures much coarser and about equally close, confused between the first costa and the suture, somewhat irregular between the first and second costæ, externally in nearly regular series, first costa distinct, second feeble, all nearly devoid of punctures. Beneath moderately punctate, abdomen with lateral raised line separating the dorsal and ventral portions of the segments, propygidial groove distinct. Front tibiæ tridentate, the upper tooth nearer the second than to the base, the middle tooth nearer the apical one. Claws cleft subapically, the lower part a little stouter and obliquely truncate. Length 7-8 mm., width 3.75-4.2 mm.

The home of this species is again the mountains of southeastern Arizona. Schaeffer's type was taken in the Huachuca Mountains, and a specimen taken by Dr. Skinner at the same time bears the label "Carr Cañon, August, 1905." A specimen in the National Museum collection is from Fort Grant, July 14.

In form, size, mental, abdominal and ungual characters this species is closely in accord with *mimosæ*. Aside from the non-bilobed labrum, it differs in its shorter elytral pubescence, glabrous thorax, and the pronounced disparity in size of the thoracic and elytral punctures, the clypeal angles are more strongly dentiform than in *popino*.

7. **D. bowditchi** n. sp.

Piceous brown, tarsi paler, upper surface densely finely punctate, with very short pale subrecumbent pubescence. Mentum declivous in front, arcuate ridge and row of setæ distinct, labium concave

Head densely punctate, clypeal suture moderately impressed, nearly straight, clypeal margin broadly sinuate at middle, the lateral angles dentiform, the external sinuation distinct. Prothorax two-thirds wider than long, sides nearly straight and subparallel in basal two-fifths, thence more distinctly arcuate and convergent; not at all sinuate in front, the angles a little obtuse but not rounded; punctuation fine, dense and evenly distributed, lateral foveæ indistinct. Elytra one-half longer than wide, but slightly wider than the prothorax at base, gradually wider posteriorly, three times as long as the thorax and one-third wider at point of greatest width; first discal costa distinct, second evident but feeble; intercostal punctuation completely confused, the punctures not coarser and but slightly less dense than on the thorax; discal costæ with a somewhat irregular line of punctures, which are scarcely finer than those of the interspaces and about as closely placed. Beneath as closely and a little more coarsely punctate, sparsely pubescent. Upper tooth of front tibia much nearer the apical tooth than to the base. Claws cleft at tip, the lower portion slightly shorter and subtruncate. Length 11½–12 mm.; width 6.2–6.4 mm.

Habitat.—Missouri.

Two specimens of this fine species have been sent by Mr. Bowditch, to whom it gives me pleasure to dedicate it. The sexual characters are remarkably pronounced for the genus. In the male the terminal joint of the maxillary palpus is evidently broader and obliquely truncate, the antennal club a little larger and joints 1–4 of the front and middle tarsi are furnished beneath with dense pads of yellow pubescence. The hind femora in the female are stouter than in the male.

This species is not represented in any other collection which I have seen and the fact that the angulate or dentate clypeus and pubescent male tarsi occur elsewhere only in a few species from our extreme southern boundary and are more characteristic of the Mexican fauna than our own, suggest a possible error in locality. It appears to be quite distinct from anything mentioned in the "Biologia."

8. **D. villosa** n. sp.

Castaneous, surface polished without trace of fine alutaceous sculpture; punctuation coarse and dense, the punctures of about equal size throughout and each bearing a suberect hair about one-third or one-fourth as long as the scutellar width. Mentum declivous in front, the declivity limited by a strong arcuate ridge and accompanying erect setæ Head densely cribrate punctate, clypeus moderately widely reflexed, broadly emarginate or subtruncate, the angles obtuse but fairly well defined with slightly rounded vertices front nearly flat without elevations or impressions Prothorax nearly or quite twice as wide as long, widest near the base, sides very broadly rounded and a little convergent in front, angles all obtuse disk very coarsely punctate, the punctures nearly in mutual contact as a rule, base with marginal impressed line Elytra a little more than three times as long as the prothorax, one third longer than wide discal costæ indistinct, punctate, the intercostal spaces with dense, coarse, confused punctures Beneath less coarsely but equally densely punctate, except along the median line of the body Propygidium without apical groove Tibial teeth subequidistant, the upper nearly twice as far from the base as from the apical tooth Claws cleft the inferior portion a little shorter and stouter Length 7 6–8 4 mm width 3,9–4 3 mm

Habitat —Texas One example from Columbus (Hubbard and Schwarz) and three others without definite locality

9 **D. puberula** Lec

Oblong, scarcely wider posteriorly, dark brown, upper surface polished with scarcely a trace of alutaceous sculpture sparsely hairy the hairs erect and averaging in length one half the width of the scutellum or slightly less Declivity of mentum beginning at the middle of its length, the raised line rather feeble or imperfect accompanying setæ about eight in number, anterior suture curved forward a little at middle, the basal margin of the ligula elevated and a little prominent along the arcuation Head densely moderately strongly punctate, the front broadly feebly impressed at the middle obscuring the clypeal suture, which is distinct laterally Clypeal margin either truncate at middle with fairly distinct angles or broadly rotundate Prothorax very little less than twice as wide as long, widest just before the base, not much narrowed in front the sides broadly arcuate disk closely not coarsely punctate, basal margin narrowly impressed, angles obtuse Elytra three times as long and one fifth or one sixth wider than the prothorax rather densely and evidently more coarsely punctate than the thorax discal costæ feeble, the first more evident intercostal areas confusedly punctate sutural interval with an irregular series of finer punctures, costæ with single rows of somewhat finer punctures which are as approximate as the larger ones of the geminate striæ Beneath rather densely punctate, propygidium without apical marginal groove Teeth of anterior tibiæ small and obtuse or feebly developed, the posterior a little more remote, and twice as distant from the base as from the anterior tooth Claws cleft at tip, the inferior portion stouter but scarcely shorter Length 8–8 5 mm , width 4 1–4 4 mm

Very few specimens of this species have been seen, all from Texas, without indication of exact locality, and nearly all collected years ago by Belfrage. It is most closely allied to *villosa*, but is a rather larger species with wider head, clypeal margin at most truncate, never sinuate, the truncation narrower, the prothorax much less coarsely punctate and evidently more finely so than the elytra. There is also an apparently constant difference in the suture separating the ligula from the mentum, this being nearly or quite straight in *villosa* and without raised margin at middle.

10. **D. brevisetosa** Linell.

Ovate, convex, rufo-ferruginous to rufo-piceous, polished, shining, sparsely hairy, the hairs very short and much inclined. Mentum distinctly declivous anteriorly from about the apical two-fifths, arcuate ridge and setæ distinct. Head convex, moderately coarsely punctate, the punctures close on the clypeus but well separated posteriorly; clypeal suture obliterated except near the eyes, margin rounded from side to side, or with the middle subtruncate for a short distance. Prothorax a little less than twice as wide as long, widest at a point just in advance of the middle, thence just visibly convergent or subparallel to base, moderately strongly convergent in front, base angles nearly right, apical angles a little obtuse as viewed from above; disk evenly convex, punctuation somewhat variable, the punctures as a rule separated from one-half to their own diameters at the middle, slightly closer laterally. Elytra scarcely wider at base than the thorax, wider behind, barely three times as long and scarcely one-third wider than the thorax; costæ feeble, all the intercostal areas confusedly rather closely punctate, the punctures equal in size to those of the thorax; costæ with single lines of finer punctures. Body beneath rather densely punctate at sides, metasternum and abdomen nearly smooth at middle Upper tooth of front tibia about equally distant from base and apical tooth; claws cleft at tip, the lower portion broader and nearly as long as the upper Length 6–7.25 mm.; width 3.25–3.6 mm.

Habitat.—Brighton, Nueces Co., Texas (type series); Goliad, Texas, April 18th (Schwarz). Other examples in the National Museum collection are doubtless from Texas, though they carry no locality label.

The tabular characters are amply sufficient for the recognition of this very distinct species, but there may also be added as equally characteristic when compared with the other hairy species, the widely obliterated clypeal suture and smooth median line of metathorax and abdomen Although strongly shining the elytra show the minute alutaceous sculpture, this is not detectable on the thorax except very faintly toward the side margins

11 **D. muricata** Schf

Oblong, not or but slightly wider posteriorly black, rarely brown, surface finely alutaceous, lustre dull, sparsely hairy the hairs or setæ very short, pale, inclined and more or less recurved, not longer than one-fourth the scutellar width on the elytra, and shorter still on the prothorax Mentum with raised line and setæ fairly distinct, labrum rather strongly arcuately emarginate Head densely rather coarsely cribiate punctate, front and clypeus in same plane when viewed in profile, the clypeal suture rather feebly impressed but distinct, margin narrowly reflexed, arcuato truncate at middle rarely with short barely perceptible sinuation Prothorax two thirds wider than long, widest at middle, sides strongly nearly evenly arcuate, base not much wider than apex, angles as viewed from above obtuse but well defined, disk coarsely closely punctate, very densely so at sides Elytra one-fourth longer than wide about one seventh wider and two and one half times as long as the prothorax, costæ very indistinct punctuation coarse, close, and somewhat muricate, confused in first intercostal space Beneath still more coarsely punctate though less densely so, especially the basal parts of each segment except the last Legs short, tarsi stouter than usual, basal joint of hind tarsus as wide as long Upper tooth of front tibia median in position Ungual tooth a little post median Length 7½–9 mm width 4 3 5 mm

This species was taken in some numbers by Mr Wickham at Alpine, Marfa and Big Springs Texas, in July and August

12 **D. hispida** n sp

Oblong, not or scarcely wider posteriorly brown to piceous, surface finely alutaceous and sparsely hairy the hairs semi erect and not longer than one fourth the scutellar width Mentum declivous in front, broadly concave posteriorly, the transverse row of setæ at the anterior third Head densely moderately coarsely punctate, clypeal suture distinct posteriorly arcuate at middle, clypeal margin rotundate, normally subtruncate at middle Prothorax three fourths wider than long, widest at middle, sides moderately rounded, more strongly convergent in front, angles well defined, a little obtuse punctuation moderately coarse, the punctures separated at middle by one half to three fourths their own diameters, closer at sides Elytra about two and two-thirds times as long as the prothorax and nearly two-fifths wider; costæ faint, punctuation confused in first intercostal space, slightly so in second; each costa with a row of fine punctures. Propygidium with apical marginal groove; pygidium rugosely but not deeply or very coarsely punctate. Metasternum coarsely rather sparsely punctured, abdomen coarsely punctate at sides, the punctures at middle much finer and arranged in somewhat irregular transverse series along the middle of each segment. Front tibiæ strongly acutely tridentate, the upper tooth midway between base and apex, basal joint of hind tarsus nearly or quite twice as long as wide. Ungual tooth post-median but distinctly stouter than the apical portion of the claw. Length 7.8–9 mm.; width 4 2–4.7 mm.

New Mexico (Albuquerque and Deming); collected by Mr. Wickham. This species is easily separated from *muricata* by the tabular characters. According to Mr. Schaeffer, who has kindly compared a specimen with the type of *sparsesetosa*, it differs from the latter species in its distinct clypeal suture, hairs of upper surface longer and more numerous, discal costæ less distinct; punctuation of elytra, pygidium and abdomen sparser and less coarse and deep; apical teeth of front tibia less approximate and basal joint of hind tarsus a little longer.

13. **D. sparsesetosa** Schf.

"Robust, black. Head coarsely and densely punctate; genæ distinct but continuous with the sides of the clypeus; clypeal suture absent; clypeus more densely punctate than the head, apical margin feebly reflexed and scarcely emarginate, angles broadly rounded. Thorax twice as wide at base as long; apex slightly narrower than base, sides arcuate; surface very coarsely punctate, punctures well separated on the disk, dense at sides. Elytra not quite one and a half times as long as wide at base, widening towards apex; costæ distinct and with a row of smaller punctures; punctures of intervals between the geminate rows of punctures confused, coarse, but not dense, each bearing a very short pale pair, which is more apparent when the specimen is viewed laterally. Propygidium with a deep transverse well-limited and coarsely punctate impression. Abdominal spiracle rather prominent. Pygidium extremely coarsely and confluently punctate. Labrum broadly arcuate emarginate. Anterior tibiæ tridentate, the upper tooth twice as far from the second as the latter from the first. Claws cleft, the lower part broader and much shorter than the upper and truncate at apex. Metasternum and abdomen coarsely but not densely punctate, the latter still more coarsely punctate at sides. Length 9 mm."

Texas (Dietz).

"From *muricata* this species differs in being more robust, the elytra widening towards apex, much shorter and finer pale hairs and the elytra punctuation different."

The above description and remarks have been taken from Mr. Schaeffer's paper, as I have not seen the unique type, which is in the Museum of the Brooklyn Institute.

14. **D. knausii** Schf.

Elongate oblong, sides nearly parallel, ferruginous to piceous, glabrous, moderately shining. Mentum deeply parabolically excavate in front; labrum deeply divided, the lobes prominent. Head densely rather coarsely punctate, front with a rather deep triangular impression behind the clypeal suture, the latter distinct; clypeus transversely tumid posteriorly, moderately reflexed in front, margin feebly or moderately sinuate at middle. Prothorax barely two-thirds as long as wide, widest at or a little behind the middle, sides broadly arcuate, very slightly convergent posteriorly, a little more so in front, apex not much narrower than the base; disk closely punctate throughout, a little less so at middle; sides with a subtransverse impression anteriorly, the median lateral fovea usually distinct but variable. Elytra fully two and one-half times as long as, and about one-eighth wider than the prothorax; almost one-half longer than wide, not dilated posteriorly; punctures somewhat coarser than those of the prothorax and arranged in regular lines except between the suture and first geminate stria; costæ very indistinct, each with a row of very fine rather distant punctures Body beneath rather sparsely but coarsely punctate at sides, finely and still more sparsely along the middle; second, third, and fourth ventrals with a striate tubercle on each side of the middle, these decreasing in size from the base and frequently obsolete, except the basal ones, in the female. Pygidium very coarsely rugosely punctate; propygidium with apical coarsely punctured marginal groove. Upper tooth of front tibiæ midway between the base and apical tooth. Basal joint of anterior tarsus compressed, triangular and about as wide as long in the male, much less dilated in the female. Claws cleft subapically, the interior portion obviously shorter. Length 8 75–11 mm.; width 4 3–5 25 mm.

Habitat.—Nevada (Las Vegas—type); Utah (Horn collection); Arizona (Tucson—Leng collection; Riverside—Wickham; Hot Springs—Barber and Schwarz; Phœnix—Dr. Griffith).

The types of this remarkable species were taken not long since in southern Nevada by Mr. Tom Spalding, and sent to Mr. Knaus, to whom I am indebted for an example. The species, however, had long been in various collections, usually under the name *mœrens*. The prominent deeply divided labrum and excavated mentum at once distinguish this species from all others in our fauna, except *fissilabris*, from which the tabular characters are probably sufficient to separate it; further differences being given under *fissilabris*.

15. **D. fissilabris** n. sp

Very similar to *knausii* in most respects, the chief differences being as follows: the labrum, though very prominent, is less so than in *knausii;* transverse clypeal ridge less pronounced, frontal impression vague or obsolete, prothorax more obviously narrowed in front, elytral punctures of third intercostal space more evidently confused in basal half, ventral segments without tubercles in either sex, but with a series of short parallel rugæ on segments 2–4 in the male; basal joint of front tarsi not broader than the second joint in the male, all the joints being merely a little stouter in this sex; ungual tooth slightly more apical in position. Length 8.3–10.5 mm.

All specimens seen are from southern Arizona. It was taken there by Morrison years ago—locality not indicated—and more recently at Tucson by Wickham and Hubbard or Schwarz, and at Florence by Biederman. A male specimen collected by Dr. Skinner in the Huachuca Mountains differs a little in having the punctures of the second intercostal space slightly confused, and in the more produced inner angles of the front tarsal joints.

16. **D. schaefferi** n. sp.

Oblong ovate, rufoferruginous. Elytra minutely, prothorax just visibly alutaceous. Mentum very broadly subconvex or nearly flat throughout, the anterior declivity scarcely detectable though defined posteriorly by the transverse row of setigerous punctures, which are at or slightly in advance of the middle. Clypeus moderately strongly reflexed, broadly feebly sinuate at middle with rounded angles; clypeus and front moderately densely punctate, the punctures becoming sparser toward the occiput; clypeal suture finely impressed, subobsolete at middle in some specimens. Prothorax slightly more than one-half wider than long, widest at about the middle, where the sides are rather narrowly or subangularly rounded; nearly straight before and behind; angles obtuse but well defined; punctuation rather fine and dense, the punctures separated by rather less than their own diameters on the average. Elytra three-tenths longer than wide, two and three-fourths times as long and nearly one-half wider than the thorax, distinctly wider posteriorly; first discal costa evident, second indistinct, each with more or less irregular or confused punctuation; all the intercostal spaces with fine confused punctuation. Pygidium moderately closely punctate; propygidial apical groove fine. Body beneath finely sparsely punctate at middle, more closely but not coarsely laterally. Upper tooth of front tibia submedian; ungual tooth subapical, feebly or scarcely obliquely truncate, its apex about four times as distant from the base as from the point of the claw (male), or distinctly obliquely truncate, its apex barely three times as far from the base as from the tip of the claw (female). Length 7.5–7.8 mm.; width 4.2–4.4 mm.

New Braunfels, Texas. Four examples submitted by Mr. Schaeffer, to whom it gives me pleasure to dedicate the species.

In the male the tarsal claws are relatively longer and more slender than in any other species known to me except *macronycha*. The eyes are also noticeably larger and the hind thighs more slender in the male. The irregularity of punctuation of the elytral costæ is a very exceptional character, and is so marked on the second costa as to greatly obscure it. This species does not look quite right in its present position, but the mentum is as completely devoid of anterior declivity and transverse ridge as in *mentalis*, and it should therefore be tabulated here.

17. **D. mentalis** n. sp.

Moderately robust, very slightly wider posteriorly, head and thorax polished, elytra minutely alutaceous but shining Mentum large, broadly convex, more or less flattened at middle, not declivous in front, transverse ridge wanting, the accompanying setæ nearly or quite absent. Terminal joint of maxillary palpi very elongate cylindrical pointed, three to four times as long as wide Front flattened or vaguely impressed at middle behind the clypeal suture, the latter distinct; punctuation rather sparse, the punctures distant by their own diameters or more at middle, a little closer at sides; clypeus with rather strong basal transverse ridge, punctures close, margin truncate and feebly sinuate at middle, angles rounded. Prothorax very nearly twice as wide as long, widest at or slightly behind the middle; sides moderately arcuate, more convergent in front; angles obtuse, punctuation rather fine and sparse, the punctures separated at middle by two or three times their own diameters, a little closer at sides. Elytra not quite three times as long as the prothorax, and barely one-fourth longer than wide, slightly wider posteriorly; costæ sharply defined by the geminate striæ; intercostal spaces closely confusedly punctate, the first three times as wide as the sutural interspace, the second twice as wide as the adjoining costæ; the third nearly as wide as the second; narrower intervals with a single row of finer punctures, which are quite irregularly placed on the sutural interval. Propygidium with apical groove; pygidium not very coarsely or densely punctate. Metasternum and ventral segments finely sparsely punctate at middle, more closely and coarsely at sides. Upper tooth of front tibia a little more remote from the base than from the apical tooth. Ungual tooth slightly post-median, the apex of the tooth distinctly more remote from the base than from the tip of the claw. Length 9–10 mm.; width 4.8–5.3 mm.

The greater number of specimens seen are from Texas,—St. Elmo and New Braunfels being the only specific localities given. There is a single example labeled Tennessee in my collection, and I have seen two from New Mexico—Santa Fé and Pecos—both taken by Cockerell.

The strong clypeal ridge, very slender terminal joint of maxillary palpi, absence of raised line of the mentum and almost complete absence of setæ (there are sometimes one or two) should enable the student to identify this species without difficulty, notwithstanding its close relationship to the three following.

18. **D. conformis** n. sp.

Very similar to the preceding species, the description of which applies very nearly except in the following particulars. The clypeus lacks or shows only a trace of the basal ridge; the prothorax is as a rule minutely alutaceous; terminal joint of maxillary palpi less elongate, about two and one-half times as long as wide; the mentum shows the transverse row of punctures at the anterior third, a little irregular in arrangement and not all bearing setæ; the intercostal spaces of the elytra are not so wide and are less numerously punctate, the first intercostal space scarcely more than twice as wide as the sutural interval; ungual tooth more nearly median, the distance from its apex to the tip of the claw being very nearly as great as to the base.

In range this species is more northern and western. It is known to me from Glenwood Springs, Colorado (Fenyes), and from Prescott and Bright Angel, Arizona. Specimens in Mr. Dury's collection are labeled "Northern Arizona."

19. **D. residua** n. sp.

Ferruginous, prothorax polished. Elytra finely alutaceous but shining. Mentum without transverse raised line but with the row of setæ, before which it is plainly declivous. Terminal joint of maxillary palpi ovate, acutely pointed, but slightly more than twice as long as wide. Front and clypeus rather densely punctate, punctures becoming well separated only at the middle of the vertex; clypeus with only faint trace of transverse ridge, the margin more broadly reflexed than in the allied species, similarly sinuate emarginate. Prothorax widest at middle, the sides strongly arcuate. Elytra more conspicuously widened posteriorly than in allies, intercostal spaces narrower than in *conformis* and much narrower than in *mentalis;* the second and third having no more than a confused single or double series of punctures. Metasternum smooth at middle, ventral segments finely sparsely punctate at middle. Upper tooth of front tibia midway between the base and apical tooth. Ungual tooth nearly as in *mentalis.* Length 8.75 mm.; width 4.6 mm.

One example (type) from Idaho in the Horn collection; a second specimen from British Columbia (Liebeck collection) is also referred here. It is piceous in color and differs a little in the elytral punctuation, and the metasternum is not smooth at middle.

From *conformis*, to which it is closely related, this species may be separated by the more broadly reflexed clypeus and differently punctate head; the terminal joint of the maxillary palpi is still shorter. The antennæ are seemingly 9-jointed, the fifth and sixth joints being completely united, the line of junction, however, being plainly evident on one side but not on the other. I doubt very much if this is anything more than accidental.

20 **D. tenebrosa** n sp

Rather robust, evidently wider behind, black or piceous, prothorax without or with barely detectable alutaceous sculpture, elytra distinctly alutaceous Mentum flat posteriorly. evidently but rather feebly declivous in front, the posterior (upper) limit of the declivity marked with a row of setæ but with only a faint trace of transverse ridge. Terminal joint of maxillary palpus barely twice as long as wide. Front and clypeus moderately densely evenly punctate, the latter without basal ridge; clypeal suture distinct, nearly straight, front margin sinuate at middle. Prothorax nearly twice as wide as long, sides moderately rounded at middle, subparallel or very slightly convergent behind, more convergent in front; surface moderately closely punctate at sides, the punctures at middle a little sparser, separated by from one to two times their own diameters. Elytra three times as long and one-third wider than the prothorax; one-fifth longer than wide; discal costæ fairly distinct, intercostal areas all with confused punctuation, the first nearly three times as wide at base as the sutural interspace. Pygidium not densely punctate; body beneath sparsely finely punctate at middle, more closely at sides. Upper tooth of front tibia midway between base and apical tooth, or very slightly nearer the base. Ungual tooth moderately large, obliquely truncate at apex, nearly twice as far from the base as from the end of the claw. Length 7.8–10 mm.; width 4.2–5.4 mm.

This is apparently a fairly common species in the northwest quarter of the United States. The following localities are represented in the material at hand: Nebraska (one example—Bowditch collection); Helena, Montana (many examples—Hubbard and Schwarz); Nevada (one example—National Museum collection); Washington (one example—Dury collection); California (three examples—Leng collection).

Of the four species with broadly convex or subconvex mentum—*mentalis*, *conformis*, *residua* and *tenebrosa*—the present one is the most robust and the only one that is always black or virtually so. *Conformis* is always brown of some shade, never truly black, and is the narrowest in form. *Mentalis* alone possesses the clypeal ridge, and is the only one in which the upper tooth of the front tibia is obviously nearer the apex than the base. The terminal joint of the maxillary palpi is most elongate in *mentalis*, in which it is more than three times as long as wide, and there is a gradual decrease through *conformis* and *residua* to rather less than twice as long as wide in *tenebrosa*.

21. **D. costulata** n. sp.

Piceous black, rarely brown or ferruginous, densely punctate, the elytra alutaceous and dull or feebly shining. Mentum broadly rather deeply concave anteriorly, the margin of the concavity arcuate posteriorly and reaching a little behind the middle, without raised line, the punctures of the arcuate series fine and indistinct, and as a rule non-setiferous. Head densely punctate, front with transverse post-clypeal convexity above which it is bi-impressed; clypeal margin sinuate at middle. Prothorax twice as wide as long, sides parallel for a short distance at base, then broadly arcuately convergent anteriorly, all the angles evidently impressed; punctuation similar to that of the head and nearly as dense, the punctures separated by less than their own diameters, except rarely. Elytra three and one-third times as long as the prothorax, slightly wider posteriorly; discal costæ unusually distinct, the interspaces wide and closely, confusedly, more coarsely punctate than the thorax; the first intercostal area nearly or quite four times as wide as the sutural interspace. Body beneath sparsely punctate at middle, closely so laterally. Tibial teeth small and often obtuse, the upper one nearer the apical one than to the base. Ungual tooth submedian, acute, scarcely obliquely truncate, its apex about four-fifths as far from the base as from the tip of the claw. Length 12.5–13.8 mm.; width 6.6–7.2 mm.

Most of the specimens seen were taken by Barber and Schwarz at Williams, Arizona. Also taken by Dr. Skinner in the Huachuca Mountains, Arizona.

The so-called elytral costæ are, I think, rather better defined than in any other species of the genus known to me.

22. **D. brevicollis** Lec.

Moderately elongate, scarcely wider behind, ferruginous to dark castaneous, rarely nearly black, shining, head and prothorax polished, elytra with minute alutaceous sculpture visible only on close examination. Mentum broadly concave anteriorly, nearly as in *costulata* Front with a median impression or two more or less confluent impressions behind an evident post-clypeal convexity; punctuation not dense, the punctures separated by their own diameters or rather more, the clypeal suture smoother; clypeus closely punctate, margin sinuate at middle with rounded angles. Prothorax twice or slightly more than twice as wide as long, sides subparallel or very slightly convergent behind in basal two-fifths, arcuately narrowed anteriorly; angles rather sharply defined, all impressed; disk rather sparsely not coarsely punctate, punctures but little closer at sides, where they are separated on an average by their own diameters. Elytra not or scarcely wider behind fully two-fifths longer than wide and nearly or quite four times as long as the prothorax; costæ distinctly defined, intercostæ rather wide, the first about three times as wide as the sutural interval; all confusedly moderately numerously punctate, the punctures distinctly coarser than those of the prothorax; narrow intervals with single rows of rather distant fine punctures. Pygidium moderately coarsely punctate; metasternum closely punctured at sides and in front, nearly smooth at middle; ventral segments sparsely finely punctured at middle, more numerously and coarsely so laterally, especially posteriorly. Upper tooth of front tibiæ about two-thirds as far from the apex as from the base. Ungual tooth moderately large and acute, slightly post-median, its apex not distinctly obliquely truncate, the tip of the tooth a little more distant from the base than from the end of the claw. Length 12–14 mm.; width 6¾–7½ mm.

This is one of our largest species, and one of the commonest throughout its range, which includes the entire Rocky Mountain region, extending to the Pacific Coast in the north. The following localities are represented in the material seen: Vancouver; Victoria; Washington (type series); Oregon; California—no specific locality but doubtless from the northern or northeastern part of the State; Idaho (Cœur d'Alene); Utah; Montana (Helena); Wyoming (National Park); Colorado (Cañon City, Denver, Golden, Colorado Springs, Graham's Park, Silver Plume, Leadville, Veta Pass); New Mexico (Pecos, Las Vegas Hot Springs, San Geronimo, Aztec, Beulah, Cloudcroft); Arizona (Williams, Flagstaff, Huachuca Mountains).

23. **D. semifoveata** n. sp.

Elongate, subparallel, dark brown, prothorax polished, elytra finely alutaceous, moderately shining. Mentum broadly concave in more than anterior half, without arcuate raised line or setæ. Front feebly impressed or bi-impressed at middle, post-clypeal convexity evident but not strong; clypeal suture smooth, strongly impressed; clypeal margin feebly sinuate at middle; punctuation of head moderately strong and close, the punctures separated by their own diameters or less, except at middle of vertex, denser on the clypeus. Prothorax short, twice as wide as long, sides broadly arcuate and convergent in front, slightly rounded in basal two-fifths, disk somewhat irregularly not very closely punctate; front angles evidently but not very conspicuously impressed. Elytra three and one-half times as long as the prothorax and nearly one-half longer than wide; costæ flat, distinctly limited, the wider intervals closely confusedly punctate, the first barely three times as wide as the sutural interval; punctures of sutural and costal intervals more numerous and irregular than usual, those of the lateral interspaces less evidently smaller than the strial punctures. Body beneath nearly smooth at middle, moderately punctate at sides. Upper tooth of front tibia about three-fourths as far from base as from apex; ungual tooth slightly post-median, rather broad and obliquely truncate, its tip about three-fourths as far from the end as from the base of the claw. Length 9.4–9.8 mm.; width 4.65–5 mm.

Arizona.—Huachuca Mountains, Schaeffer and Skinner.

24. **D. parvicollis** n. sp.

Less elongate than *semifoveata*, red-brown, moderately shining, the elytra minutely alutaceous. Structure of mentum nearly as in *brevicollis*. Head finely sparsely punctate, the punctures on the front separated by from one to three times their own diameters; post clypeal convexity and frontal impressions feebly defined, clypeal suture deep; clypeus more closely punctate, margin sinuato-truncate with rounded angles—nearly as in *brevicollis*. Prothorax more than twice as wide as long, sides broadly arcuate, narrowing from the extreme base; angles well defined, the posterior ones broadly foveate or concave, front angles not impressed. Elytra as in *brevicollis*. Body beneath rather broadly subimpunctate at middle, sparsely finely punctate at sides. Legs nearly as in *brevicollis*. Length 8½–10¾ mm.; width 4.5–5.8 mm.

This species appears to be far less abundant than *brevicollis*, to which it is most closely related and which it somewhat resembles in miniature. It has been taken by Bowditch near Durango, Colorado; by Barber and Schwarz at Las Vegas Hot Springs, New Mexico, and by Snow in New Mexico, locality not stated.

The prothorax is more strongly transverse than in any other species known to me, though some specimens of *brevicollis* approach rather closely. From the latter it may at once be separated by the small size and unimpressed apical angles of the thorax. From *semifoveata*, which is of nearly the same size it differs in its somewhat more transverse thorax, which is widest at extreme base, with sharper base angles; sparser finer punctuation, and in having the basal rather than the apical thoracic angles impressed.

25. **D. levicoxa** n sp.

Moderately robust, slightly or scarcely wider behind, brown to piceous, the elytra often dark castaneous with the head and prothorax blackish; surface rather strongly shining, the elytra with barely visible alutaceous sculpture. Mentum as in *belfragei* except that the anterior declivity begins at about the anterior third; there is at the summit of the convexity a row of three or four punctures, one or two of which may bear short fine setæ, but these are most often entirely absent. Head closely rather coarsely punctate, the clypeus densely so; front narrowly nearly smooth along the clypeal suture, the latter distinctly impressed; post-clypeal convexity broad but distinct; clypeal margin either arcuate or feebly sinuate at middle. Prothorax fully twice as wide as long, sides parallel or just perceptibly convergent and subsinuate posteriorly in basal two-fifths, broadly rounded and convergent in front; disk rather sparsely not coarsely punctate, the punctures separated by about their own diameters at sides, sparser at middle; angles sharply defined, the hind ones nearly rectangular as viewed from above, apical marginal impressed line evident, surface within the angles not distinctly impressed. Elytra rather more than three times as long as the prothorax, two-fifths longer than wide, discal costæ distinctly defined, intercostal spaces rather wide, confusedly punctate, the punctures coarser and closer than on the thoracic disk. Metasternum broadly nearly smooth at middle, moderately coarsely punctate at sides. Abdomen coarsely punctate at sides, sparsely more finely so at middle. Hind coxæ nearly or quite impunctate, hind thighs subimpunctate between the submarginal series of punctures. Upper tooth of front tibia midway between base and apex. Ungual tooth median in position, its apex nearly equally distant from base and tip of claw. Length 12–12.5 mm., width 6.6–7 mm.

The type series was taken at Stockton, Utah, by Mr. Tom Spalding, and sent me by Mr. Knaus. The species has also occurred at Salt Lake, Utah, Flagstaff, Ash Fork and Tucson, Arizona (the last not quite typical), Nevada, California, New Mexico.

The impunctate hind coxæ are the most characteristic feature of this species, in which respect it is approached closely by *haydenii* alone. In the Tucson, Arizona, specimen and in one California example there are a few punctures along the hind margin of the coxa, but these specimens agree in other respects with the type.

26. **D. haydenii** Lec.

Oblong oval, moderately elongate, not or scarcely wider behind, rufotestaceous, shining, the elytra and sometimes the thorax very minutely alutaceous. Mentum declivity beginning at the anterior third, its summit without acute edge or erect setæ. Clypeus truncate and feebly sinuate at middle the angles rounded, closely punctate, the suture rather strongly impressed. Front more sparsely punctate but somewhat variably so, the clypeal suture often narrowly smoother, post-clypeal convexity broad but evident. Prothorax twice as wide as long, widest at or a little behind the middle, the sides nearly straight and as a rule slightly convergent posteriorly, rather strongly convergent anteriorly, front angles acute and more prominent than usual, hind angles a little obtuse but sharply defined, anterior margin with distinct impressed line, the three lateral foveæ usually distinct but somewhat variable, punctuation rather fine and sparse, the punctures separated on the average by twice their diameters. Elytra about three and one-half times as long as the prothorax, discal costæ distinct, intercostæ wide and confusedly punctate, the first one at its widest part nearly four times as wide as the sutural interspace. Body beneath sparsely punctate at middle; the metasternum subimpunctate; sides moderately punctate; hind coxal plates sparsely punctate; hind femora smooth at middle. Upper tooth of front tibia midway between apex and base. Ungual tooth median in position, its apex as far from the tip as from the base of the claw. Length 9–13 mm.; width 4.7–6.8 mm.

The types of this species were taken on the Yellowstone River by Dr. F. V. Hayden. It is a common species in the Rocky Mountain region, especially toward the north.

The following localities are represented in the material before me: Helena, Assiniboine and Glendive, Montana; Laramie, Wyoming; Pueblo and Greeley, Colorado; Williston, North Dakota; Kansas; Nebraska; Las Vegas and Gallinas Hot Springs, New Mexico; Arizona (one example in Bowditch collection).

Haydenii is very closely related to *levicoxa*, but the hind coxal plates are here always somewhat punctured, the size is smaller, the color very uniformly rufotestaceous (blackish in *levicoxa*), the front angles of the prothorax a little more prominent, and the sides of the body beneath are less coarsely punctate.

The *innoxia* of LeConte does not differ specifically.

27. **D. dentella** n. sp.

Moderately robust, slightly or scarcely wider behind; black, more rarely castaneous or rufous, shining, the elytra barely visibly alutaceous. Mentum nearly as in *belfragei* except that the anterior declivity begins farther forward. Clypeus densely punctate, margin sinuato-truncate with rounded angles; front closely punctate, clypeal suture not or but very narrowly smoother; post-clypeal convexity and the posteriorly adjacent impression faint. Prothorax not quite twice as wide as long, broadly rounded anteriorly, subparallel and slightly sinuate behind the middle; hind angles nearly rectangular as viewed from above, punctures distant from one to three times their own diameters, averaging a little closer laterally. Elytra one-third longer than wide and about three times as long as the prothorax; costæ rather indistinct, the first intercostal space at middle scarcely more than twice as wide as the sutural interval, and with confused punctuation; second and third intercostal spaces narrow, the punctures often arranged in nearly regular series, but sometimes more plainly confused. Metasternum nearly smooth at middle, moderately punctate at sides, ventral segments rather coarsely and closely punctate at sides, less coarsely and closely at middle Upper tooth of front tibia slightly nearer the apex than the base Hind thighs not punctured at middle, claws with short median tooth, its tip as far from the apex as from the base of the claw Length 11–12½ mm; width 5¾–6¾ mm

This species has been taken in some numbers at Fort Grant (type) and Oracle, Arizona, by Hubbard and Schwarz; also taken by Oslar and Schaeffer, in the Huachuca Mountains. The National Museum specimens were identified as *brevidens*, and quite naturally so, as this species agrees in the unusual ungual formation and occurs in the same region. The two are plainly different, however, *brevidens* being a smaller more cylindrical species, with acutely elevated mental ridge, longer and differently shaped prothorax, much broader terminal joint of maxillary palpi, and more posterior upper tooth of front tibia In *brevidens* the middle and anterior lateral thoracic foveæ are best defined (quite strongly in type), the posterior fovea obsolete; in *dentella* it is the anterior fovea that is absent.

28 **D. insignis** Lec

Oblong ovate, rufoferruginous, moderately shining Mentum nearly as in *haydenii*, the declivity beginning at the anterior two-fifths Clypeal margin truncate and very feebly sinuate at middle, angles broadly rounded Head densely punctate with feeble but evident post-clypeal convexity, above which are faint frontal impressions Prothorax short, obliquely narrowed in front, hind angles a little obtuse and sharply defined, punctuation coarse and close Elytra strongly more sparsely punctate than in *haydenii*, feebly tricostate Abdomen finely sparsely punctate at middle, closely but not very coarsely so at sides, hind coxæ punctate posteriorly and exteriorly Upper tooth of front tibia midway between base and apex Ungual tooth median in position, its outer edge nearly perpendicular to the claw, its apex very nearly equidistant from the base and point of the claw Length 13 mm

Salt Lake Desert

I have seen nothing that agrees exactly with the unique type, and though closely related to two or three of the neighboring forms, I do not with the present material, feel warranted in uniting any of them with it. Its nearest allies appear to be *dentella*, and the form *sinuata* which I have placed somewhat doubtfully as a variety of *belfragei*. The former agrees best in ungual formation, but is a somewhat smaller species with less coarsely and densely punctate thorax, and the elytral punctuation more regular. Its habitat, the mountains of southeastern Arizona, is also sufficiently distant from the Salt Lake basin to make the identity of the two forms at least questionable. *Sinuata* is nearer *insignis* in size and sculpture, but the ungual tooth is less strictly median, its outer edge more oblique basally, the thorax less transverse, and the clypeus more deeply emarginate. LeConte very properly compares *insignis* with *haydenii*, with which it is in accord in ungual dentition and in the form of the mentum; it is, however, a larger species than *haydenii*, the head and thorax much more coarsely and closely punctured, the hind angles of the latter less obtuse and more sharply outlined. The cicatrix of the terminal joint of the maxillary palpi is distinctly eroded or impressed in the type, not at all or scarcely so in *haydenii* or in the other allied forms; it is quite possible, however, that this character will not prove constant.

29. **D. belfragei** n. sp.

Moderately robust, a little wider posteriorly, black or ferruginous, moderately shining, the elytra with minute alutaceous sculpture. Mentum declivous both before and behind from about the middle, the posterior declivity feeble and broadly flat or subconvex, the anterior declivity more pronounced and broadly concave from side to side; the transverse arcuate convexity without raised line or erect setæ. Front and clypeus in same plane, post-clypeal convexity obsolete; clypeal suture sharply defined but not deep; punctuation close and moderately coarse, the punctures a little less approximate on the vertex, but distant there by less than their own diameters; clypeal margin feebly sinuate at middle with rounded angles. Prothorax three-fourths wider than long, sides broadly arcuate, subparallel toward the base, without sinuation in typical form; hind angles sharply defined, slightly obtuse when viewed from above; angles not appreciably impressed; punctures separated on the average by their own diameters or a little less, somewhat sparser at middle. Elytra a little more than one-fourth longer than wide, and slightly more than two and one-fourth times as long as the prothorax; discal costæ very distinct, intercostæ rather broad and confusedly punctate, the first three times as wide as the sutural interval, the second about twice the width of the first costa; all the narrow intervals with a more or less regular row of very fine punctures, those of the sutural interval more numerous and confused. Body beneath sparsely punctured at middle, more closely at sides. Hind thighs rather stout, subimpunctate between the submarginal lines of punctures. Upper tooth of front tibia very nearly median in position. Ungual tooth slightly post-median, obliquely truncate, its tip three-quarters as far from the apex as from the base of the claw. Length 9½–12½ mm.; width 5.2–6.5 mm.

With the exception of a single example from Utah in the National Museum collection, all specimens of the typical form of this species are from Texas. Of these, the greater number were collected by Belfrage. There is a series in Mr. Schaeffer's collection from Burnett Co., but none of the others has exact locality indicated. For comparison with *insignis* and *atlantis* see notes under those species.

Var. *sinuata* n. var.—This name is proposed for what seems to be a varietal form of this species, differing in its larger size (13½ mm.), and in having the sides of the prothorax a little sinuate before the hind angles. It is represented by two examples in the writer's collection, taken by Prof. Cockerell at Pecos, New Mexico; and a single specimen nearly identical from Beaver Creek Mills, Utah, in Mr. Schaeffer's collection.

30. **D. atlantis** n. sp.

Moderately stout, usually but little wider behind, black or very nearly so when mature, shining, elytra minutely alutaceous, prothorax polished, without or with merest trace of alutaceous sculpture Mentum declivous in its anterior two-fifths, margin of declivity with a series of about seven short setæ, but without raised line. Clypeus densely punctate, margin truncate and just perceptibly sinuate at middle with rounded angles; front closely punctate, broadly bi-impressed and with evident post-clypeal convexity; clypeal suture sharply impressed, nearly straight, scarcely smoother. Prothorax about three-fourths wider than long, widest at or very near the base, sides broadly arcuate, subparallel basally; punctures separated by about their own diameters at middle, closer at sides; angles not at all impressed. Elytra nearly three times as long as the prothorax; costæ distinct, scarcely or but slightly more convex; intercostal spaces confusedly punctured, the first rather less than three times the width of the sutural interval. Metasternum coarsely closely punctate laterally, very finely and sparsely so at middle. Ventral segments coarsely punctate at sides, more sparsely and finely at middle. Pygidium with a somewhat vaguely impressed longitudinal median line Upper tooth of front tibia a little nearer the apex than base Hind thighs sparsely punctured at middle Ungual tooth large, obliquely truncate, subapical, its tip more than twice as far from the base as from the end of the claw Length 10–12 mm , width 5 5–6 9 mm

Occurs in the Atlantic Coast region from New Hampshire to Virginia Specimens at hand bear labels as follows New Hampshire (Hampton), Massachusetts (Dorchester, Chicopee), Rhode Island (type), New York (Staten Island, Long Island), New Jersey (Orange), Washington, D C Maryland (Plummer's Island), Virginia

This species occupies in part the same territory as does *tristis*, and the two species have been frequently mixed in collections Of the two, *tristis* is a rather larger species, with shorter prothorax, the angles frequently slightly impressed, mentum with raised line, pygidium without impressed line, punctuation beneath less coarse ungual tooth a trifle less apical in position The resemblance of *atlantis* to *belfragei* is still more close, but this latter species lacks the transverse series of mental setæ, the post clypeal convexity is obsolete, the pygidium is without impressed line and the ungual tooth is distinctly less apical

31 **D. sierræ** n sp

Rather robust, blackish brown, shining elytra minutely alutaceous Mentum declivous in anterior two fifths margin of declivity slightly prominent and with row of erect setæ Clypeal margin arcuato truncate with faint median sinuation front and clypeus densely punctate, the punctures a little less dense on the vertex post clypeal convexity rather strong, the broad frontal impressions well marked Prothorax three fourths wider than long, widest and rather strongly rounded at middle, sides thence convergent and nearly straight both before and behind, less strongly so posteriorly, punctuation coarser than usual, close at sides, the punctures at middle distant by about their own diameters surface within the angles not at all impressed front angles not prominent hind angles obtuse but sharply defined Elytra coarsely rather densely punctate, the costæ moderately well defined, intercostal punctuation confused Pygidium coarsely closely punctate Metasternum coarsely punctate laterally, numerously but much more finely so at middle Upper tooth of front tibia midway between base and apex, hind thighs punctate over their entire area, ungual tooth post-median, its apex about two thirds as far from the tip as from the base of the claw Length 11–13½ mm , width 6–7½ mm

Described from two specimens in the writer's collection, the type from Placer Co , California, the second and smaller specimen from Ormsby Co , western Nevada, collected by C. F Baker

In general form and size *sierræ* is perhaps nearest *levicoxa*, but the punctuation is much coarser than in the last-named species, the hind coxal plates are normally punctate, the mentum is different as indicated in the table, and the ungual tooth is more apical in position

32 **D. parallela** n sp

Elongate oblong, parallel, dark rufotestaceous, moderately shining, the minute alutaceous ground sculpture discernible on the thorax, and as usual better marked on the elytra Summit of mental declivity with row of erect setæ but without distinct elevated line Front and clypeus in same plane, the former without post clypeal convexity or impressions, clypeal suture posteriorly arcuate at middle, margin of clypeus broadly arcuato truncate with merest trace of sinuation at middle, punctuation of head moderately close, denser on the clypeus Prothorax four-fifths wider than long, sides parallel in basal half with or without slight sinuation posteriorly, punctures moderately fine, separated by about twice their own diameters at middle, closer at sides, apex without marginal line, angles not impressed, the front ones scarcely prominent, the hind ones rectangular Elytra parallel, a little less than four times as long as the thorax, discal costæ distinct, not elevated, intercostal spaces sparsely confusedly punctate, the first about three times the width of the sutural interspace Metasternum and abdomen finely sparsely punctate at middle, closely and more coarsely at sides Upper tooth of front tibia median in position, hind thighs punctate at middle, ungual tooth at about the apical third, large, obliquely truncate, its tip nearly twice as far from the base as from the end of the claw Length 11½ mm , width 5½–5⅔ mm

The type of this species was taken at Dripping Spring, Organ Mountains, New Mexico, April, 1898 (Cockerell) A second example from Los Pinos, Colorado (C F Baker), is in the National Museum collection

This is one of the very few species in the genus in which the length exceeds twice the width

33 **D. obscura** Lec

Moderately robust, slightly wider behind, usually dark red brown, but varying from rufotestaceous to piceous, shining, elytra finely alutaceous, head and prothorax scarcely or barely visibly so Mentum flat posteriorly, moderately declivous from about the anterior two fifths, margin of declivity raised and bearing about five erect setæ. Head rather closely not coarsely punctate, clypeus sinuate at middle with broadly rounded angles; suture posteriorly arcuate at middle, the adjacent surface of the front smoother; post-clypeal elevation and frontal impressions feeble but usually quite evident Prothorax very nearly twice as wide as long, sides parallel or a little convergent in posterior half, more strongly convergent in front, hind angles slightly obtuse, front angles feebly prominent; punctuation moderately close, the punctures separated by about their own diameters at the middle, closer at sides; all the angles impressed Elytra three-fourths as wide as long and slightly more than three times the length of the prothorax; discal costæ distinctly defined but scarcely at all elevated; intercostal areas with rather sparse confused punctuation, the first fully three times as wide as the sutural interval, the second about two-thirds as wide as the first. Punctuation beneath fine and sparse at middle, coarser and closer but not dense at sides Upper tooth of front tibiæ submedian in position, perhaps a trifle nearer the apex than the base. Hind thighs very sparsely finely punctate at middle. Ungual tooth subapical, its tip nearly or quite twice as distant from the base as from the apex of the claw. Length 9 6–12.2 mm.

The range of this species is nearly identical with that of *brevicollis*, though extending somewhat further to the north. *Obscura* is indeed more common in the northern part of its range, while the reverse seems to be true of *brevicollis*. The type was taken in the Black Hills (Dakota) by Dr. Hammond. I have seen specimens from Colorado Springs, Empire and Georgetown, Colorado; Sheridan, Wyoming; Helena and Assiniboine, Montana; Alta, Utah; Williams, Arizona; Pullman and Spokane, Washington; Vernon, British Columbia; Oxbow, Saskatchawan; Calgary, Alberta; together with numerous specimens representing nearly all of these States, but without indication of exact locality.

In a species so widely dispersed, a considerable amount of variation is to be expected. Two forms, which I regard as races of this species, seem to me to merit distinctive names. Intermediates between these and the typical form have been seen, but unles sthese are at hand, the collector might easily be persuaded that he had to do with three distinct species.

Var. *prominens* n. var.—Differs from the typical form in being more elongate, with sides of prothorax less rounded and the front angles distinctly more acutely produced. Examples of this form are known to me from Garland and Fort Collins, Colorado; southwestern Utah and New Mexico.

Var. *compacta* n. var.—More robust than typical *obscura*, color usually blackish brown, sides of thorax less arcuate as in *prominens*, but the front angles not at all prominent. The typical variety has been seen only from Utah; some examples from Wyoming, however, approach it rather more nearly than they do the true *obscura*.

34. **D. tristis** Kirby.

Moderately elongate, parallel, piceous or blackish brown, elytra minutely alutaceous but shining. Mentum nearly as in *obscura*. Clypeal margin sinuato-truncate with rounded angles, clypeal suture feebly sinuous, post-clypeal convexity and frontal impressions broad and faint, punctuation moderately close, the suture usually narrowly smoother Prothorax very slightly less than twice as wide as long, widest at base, sides broadly arcuate, often subparallel basally; front angles feebly prominent, hind angles subrectangular as viewed from above; punctuation not coarse, moderately close, a little closer laterally as usual, angles feebly impressed. Elytra almost one-half longer than wide, and rather more than three and one-half times as long as the prothorax; discal costæ distinct, very slightly convex, intercostæ confusedly punctate. Body beneath sparsely and finely punctate at middle, not very closely nor coarsely at sides. Pygidium without trace of median impressed line. Upper tooth of front tibia evidently more remote from the base than from the apex; hind thighs rather numerously and strongly punctate at middle; ungual tooth strongly post-median, broad, truncate, its tip nearly twice as far from the base as from the end of the claw. Length 12–14 mm.; width 6.3–7 mm.

Habitat.—Maine; New Hampshire; Massachusetts; New York; Pennsylvania (Arcola); Ontario (Port Hope); Michigan (Escanaba, Marquette); Kansas (Junction City). This last named locality is exceptional, and it is probable that the species occurs very rarely so far west. Kirby's types are said to have been collected in latitude 54°; he also reports it as occurring in Nova Scotia.

35. **D. liberta** Germ.

The description of *tristis* applies so well to this well-known eastern species that it is merely necessary to allude to the few distinguishing characters. The color is uniformly black or very nearly so in mature specimens, the upper surface, more especially of the elytra, with a more or less distinct violaceous lustre, no trace of which is ever discernible in *tristis*. The punctuation is notably coarser throughout, being especially coarser, sparser and more unevenly distributed on the thoracic disk. The prothorax is a trifle less transverse, the sides plainly convergent from the base. The impressions within the prothoracic angles are, as in *tristis*, rather feebly marked at best, but in case of doubt on this point, the size and locality label will always serve to identify these two species, *atlantis* being the only other of similar size and appearance occurring in the same region.

Liberta occurs from Massachusetts to Georgia, but is apparently very rarely taken to the west of the Appalachian Mountain system. The localities represented before me are Massachusetts (Tyngsboro), New York (Peekskill), New Jersey (Anglesea, Sea Island City), Delaware, Maryland (Plummer's Island), District of Columbia, Virginia (Ft. Monroe), North Carolina (Southern Pines), Georgia (Thomasville), Kentucky. The species is said to occur in Ontario, and Prof. Wickham writes me that it is recorded from Ames on the Iowa list.

36. **D. subcostata** Blanch.

Moderately robust, the elytra sometimes subparallel, sometimes distinctly wider posteriorly, red brown to castaneous, shining. Mentum moderately declivous from anterior third, declivity feebly or moderately margined. Clypeal margin feebly sinuate at middle, the lateral angles broadly rounded, clypeal suture distinctly impressed and nearly straight. Front not appreciably more convex behind the clypeal suture, frontal impressions feeble or obsolete, punctuation variable, the punctures usually well separated. Prothorax less than twice as wide as long, widest at base, sides more or less conspicuously bisinuate, hind angles right or slightly acute, disk usually sparsely finely punctate, but rather variable. Elytra one third longer than wide, discal costæ inconspicuous, not or scarcely more convex, intercostæ rather sparsely irregularly punctate, punctuation moderately coarse with a slight tendency to rugosity in some specimens, usually evident only in certain lights. Pygidium with median longitudinal impressed line. Body beneath finely sparsely punctate at middle, more closely at sides. Prosternum bicarinate at middle. Upper tooth of front tibia nearer the base than to the apex, hind thighs stout, sparsely finely punctate at middle, ungual tooth subapical, broader than and nearly as long as the upper portion of the claw, its tip about three times as far from the base as from the apex Length 9–11 mm , width 5–6 2 mm

This species occurs rather commonly in the southeastern Atlantic and Gulf region, extending west to Texas, and as far north as Pennsylvania The material at hand is from—Pennsylvania, South Carolina, Georgia (Savannah), Florida (Lake City, Crescent City, Cedar Keys), Alabama (Mobile), Texas

37 **D. rufa** Linell

Smaller and a little more elongate than *subcostata*, rufotestaceous, moderately shining, prothorax discernibly, elytra more evidently, minutely alutaceous Mentum flat posteriorly, transverse row of erect setæ well marked, the accompanying ridge feeble or absent Clypeal margin nearly squarely truncate at middle, the angles rounded Front and clypeus in same plane, the clypeal suture evident from side to side, but more feebly impressed at middle, frontal impressions obsolete, front and clypeus rather densely subrugosely punctured Prothorax three-fifths wider than long, widest at base, sides more or less evidently bisinuate, the basal sinuation always well marked, the apical one feebler and sometimes absent, punctuation coarser and closer than in *subcostata*, though not dense Elytra two-fifths longer than wide, slightly wider behind, punctuation nearly as in *subcostata* Pygidium without median impressed line Prosternal carina single Upper tooth of front tibia very small and nearer the base than the apex as in *subcostata* Body beneath, hind thighs, and claws nearly as in *subcostata* Length 8–9 mm , width 4 3–4 8 mm

All specimens known to me are from Florida, the types from Georgiana

There is little doubt that *rufa* is most nearly related to *subcostata*, but specimens in which the anterior sinuation of the sides of the prothorax is wanting or ill-defined might reasonably be traced by the table to a point farther on in the genus There is, however, no subsequent species having the posterior thoracic sinuation with subacute hind angles, combined with the absence of post-clypeal convexity and the position of the upper tooth of the front tibia

38 **D. frontalis** Lec

Moderately robust, slightly or scarcely wider behind, black or brownish black, polished, the alutaceous sculpture wanting or detectable with difficulty on some parts of the elytra Mentum flat posteriorly with scattered large punctures, strongly declivous at about the anterior fourth, the declivity not concave transversely, its summit acute and with the usual setæ. Clypeal margin broadly rotundate; post-clypeal convexity strong and abrupt, impressed at middle; head moderately densely punctate, becoming sparsely so at the middle of the vertex. Prothorax a little less than twice as wide as long, widest at about the basal two-fifths, sides moderately rounded, not appreciably sinuate before the angles; front angles not prominent, hind angles a little obtuse; disk nearly uniformly moderately closely not coarsely punctate, and with at most a very broad and feeble impression along the basal margin. Elytra barely three times as long and about one-fourth wider than the prothorax, punctuation coarse and rather dense, the three wider intervals confusedly punctured; discal costæ evident but rather inconspicuous; intrahumeral impression at base of elytra unusually strong. Body beneath coarsely densely punctate at sides, less closely and more finely so at middle. Upper tooth of front tibia feeble or obsolete, submedian in position. Ungual tooth broad, truncate, nearly as long as the outer portion of the claw. Length 8–9.2 mm.; width 4.5–4.9 mm.

Habitat.—Georgia (type); South Carolina; Florida (Lake City and Marion County). Not common in collections.

There is no possibility of confusing this species with any except the two following, one or both of which may indeed be only varietal forms of the present. The *punctatorugosa* of Blanchard is almost certainly one of these, but it is impossible to say which. The strong transverse medially impressed post-clypeal ridge distinguishes them at once.

39. **D. excavata** Lec.

Precisely similar to *frontalis*, except that the thoracic disk is rather broadly and deeply concave or impressed exteriorly along the basal margin, this impression causing the sides of the prothorax to become sinuate before the basal angles, when viewed from above. This character seems doubtfully sufficient for the specific separation of the two forms, and LeConte himself suggested that they might be sexes of the same species. I do not think the difference can be a sexual one, and I have not yet seen enough material to warrant the placing of the present form as a variety of the preceding.

More examples of this species have been seen than of the preceding, the following localities being represented: South Carolina; Georgia; Florida; Louisiana (Covington). It is also given in Smith's New Jersey list from Newark and Hopatcong.

40. **D. densicollis** n. sp.

The distinguishing character of this species is the very densely punctured and dull prothorax. The prothorax is impressed along the posterior margin as in *excavata*, the sides are sinuate before the hind angles and become also faintly sinuate or subsinuate anteriorly. The punctuation of the elytra is even a little denser, and the costæ less evident than in *excavata* or *frontalis*, but the difference is perhaps not greater than may occur in individuals of those species. One example in the Horn collection and two sent by Mr. Liebeck —all from South Carolina—are all that I have seen of this form, which as already indicated, may be an extreme variety of *excavata;* as yet, however, nothing at all intermediate has been seen.

41. **D. subangulata** Lec.

The unique type of this species differs from other specimens associated with it in the LeConte collection and is not exactly duplicated by any example in the very extensive material studied. While possibly it represents a distinct species, I am inclined to regard it as only an exceptional or perhaps a local variety of the common and widely dispersed species, one form of which has been lately described under the name *californica* by Mr. Schaeffer, and from which the type of *subangulata* differs as follows:

The clypeus is less advanced, making the head seem more transverse; the thorax is widest at middle, the sides more nearly equally convergent before and behind, the base in consequence not much wider than the apex, sides not at all sinuate before the angles; the post-clypeal convexity is rather feeble with only faint impressions back of it; the punctuation and claws are virtually identical with the ordinary form. Length 8.5 mm.

Hab.—Oregon.

Var. *californica* Schaef Dark brown or castaneous, more rarely rufous or nearly black, shining, the elytra minutely alutaceous. Mentum feebly concave posteriorly, declivous in front, margin of declivity acute and setiferous. Clypeal margin rather strongly reflexed, feebly emarginate at middle, the angles rounded. Head densely punctate, clypeal suture feebly impressed, smooth for a short distance near the eyes; post-clypeal convexity strong, not or but slightly impressed at middle, frontal impressions variable, rather deep in typical form, but often shallow and feebly marked Prothorax three fifths (more or less) wider than long, sides strongly rounded a little behind the middle, usually slightly sinuate before the front angles, all the angles well defined, but obtuse as viewed from above disk evenly convex, the anterior lateral fovea often well marked punctuation rather sparse, the punctures separated by about their own diameters at sides, less close at middle Elytra a little more than two and one half times as long as the thorax, slightly wider behind, costæ indistinct, the punctures arranged in nearly regular lines except in the broad subsutural interspace, second intercostal and humeral intervals with the punctures sometimes a little irregular especially toward the base Body beneath sparsely punctate at middle, more closely at sides Upper tooth of front tibia a little nearer the base than the apex hind thighs sparsely punctate at middle, the punctures usually arranged in a more or less irregular line claws with an obliquely truncate tooth beyond the middle its apex about two thirds as far from the tip as from the base of the claw Length 6 4–9 mm , width 3 3–4 6 mm

This subspecies in one form or another occurs more or less abundantly over a wide range of territory, being found from Kansas and Texas through New Mexico and Arizona to California, and north to British Columbia and Idaho The very large material studied bears the following labels —Kansas, Texas, New Mexico (Albuquerque, Mesilla, Las Cruces Deming), Arizona (San Simon, Oracle, Tucson, Ft Grant, Globe, Florence, Gila Bend, Willcox, Winslow, Phœnix), Utah (Salt Lake, St George), California (Salton, Death Valley, Lancaster, Redlands, Pomona, Yreka), Washington (Wenatchee), Idaho (Pocatello), British Columbia (Kamloops)

42 **D. atratula** Lec

Moderately robust, black, elytra brownish black, lustre somewhat dull, the elytra with distinct and the thorax with visible alutaceous sculpture Mentum declivous from anterior two fifths marginal ridge and setæ well developed Clypeus less produced than in *californica*, but rather more deeply sinuate at middle, the sides broadly rounded, without sinus before the eye, head densely punctate, post clypeal convexity well marked but without frontal excavation, there being only the vaguest sort of impressions above the convexity Prothorax nearly as in *carbonata*, two thirds wider than long, sides nearly straight anteriorly, rounded at posterior two thirds, front angles slightly advanced, punctuation dense at sides, less close at middle where the punctures are separated by their own diameters or a little less Elytra not quite three times as long as the prothorax, and barely one-third longer than wide; costæ moderately distinct, first intercostal space wide and confusedly punctate; second with punctures in a nearly regular row in type, but somewhat confused in a second example; outer intercostal space with punctures evidently irregularly placed; narrow intervals almost devoid of the usual series of fine punctures. Upper tooth of front tibia strong, very slightly nearer the base than the apex. Ungual tooth strongly post-median, a little more apical than in *subangulata*. Length 6.9 mm.; width 3.7 mm.

This species is known to me only by the two original specimens in the LeConte collection, said to be from Frontera, New Mexico. The tabular characters are the best that can be given for its recognition. The lack of the finer punctures of the elytral intervals if constant, is most unusual.

43. **D. connata** Schaef.

Robust, ovate, black, lustre dull, prothorax minutely, elytra distinctly alutaceous. Mentum flat posteriorly, with a few coarse punctures, declivous at anterior third, margin of declivity more or less raised and with the usual setæ. Front and clypeus in same plane, very densely punctate throughout, clypeal suture more or less completely obliterated at middle; clypeal margin rounded, feebly sinuate at middle. Prothorax two-thirds wider than long, widest at middle, sides strongly rounded, base but little wider than the apex; disk evenly convex, the usual lateral impressions absent or but faintly indicated; punctuation coarse and dense, crowded at sides, the punctures a little separated at middle. Elytra two and one-third times as long as the prothorax, about one-tenth longer than wide, sides broadly arcuate, moderately divergent from the base, punctures dense in the humeral region, elsewhere less close than on the prothorax; geminate rows fairly well marked, the broader intervals confusedly punctate, the narrower intervals with single lines of punctures which are somewhat coarser and closer than usual. Body beneath closely punctate, the metasternum densely so from side to side; metasternum very short, its length between the coxæ scarcely equal to that of the second ventral segment. Upper tooth of front tibia submedian in position; hind thighs numerously coarsely punctate; ungual tooth subapical, its tip twice as distant from the base as from the apex of the claw. Length 8.5–9.5 mm.; width 5–5.6 mm.

Hab.—All specimens known are from the Huachuca Mountains of southern Arizona.

The short metasternum and connate elytra indicate that the species is completely apterous. This appears to be true of no other species in our fauna except *macronycha*.

44 **D. macronycha** n sp

Elongate, subovate, quite convex, apparently apterous, black, moderately shining, alutaceous sculpture very fine Mentum flat posteriorly, declivous from the anterior two fifths, summit of declivity acutely raised, with series of seven or eight erect setæ Clypeus unusually widely reflexed, margin rotundate, with a very feeble median sinuation, clypeal suture moderately impressed, subobsolete for a short distance at middle, front and clypeus uniformly very densely punctate, the former with a rather feeble median longitudinal impression, which is deeper anteriorly Prothorax one half wider than long, widest at middle, base a little wider than the apex, sides uniformly strongly arcuate, just perceptibly sinuate at the hind angles, the latter slightly obtuse but sharply defined, front angles not at all prominent, disk uniformly convex, densely punctate laterally, the punctures well separated at middle Elytra two and one-third times as long as the prothorax, barely one third longer than wide, subovate, convex, costæ rather indistinct, intercostal spaces confusedly punctate, interstitial punctures of narrower intervals close Pygidium very coarsely rugose Body beneath normally punctate, metasternum short, the length between the coxæ subequal to that of the second ventral segment Upper tooth of front tibiæ submedian in position, hind thighs sparsely punctate at middle claws very long and slender, the tooth small, acute, slightly post median in position, its tip about three fourths as distant from the apex as from the base of the claw Length 9–10 3 mm width 4 5–5 mm

Hab—Moqui, New Mexico (type), Holbrook, Arizona (Wickham)

The metasternum is here not quite as short as in *connata*, but the elytra seem to be completely connate and the wings are doubtless rudimentary or wanting

45 **D. pacta** Lec

Moderately robust, ovate, black, shining, elytra finely alutaceous Mentum broadly concave posteriorly, declivous from anterior two-fifths, summit of declivity elevated clypeal margin rather strongly arcuate throughout, clypeal suture nearly straight, somewhat more impressed laterally front without obvious post clypeal convexity, scarcely or very feebly bi impressed, punctuation rather dense, not more so on the clypeus Prothorax very little less than twice as wide as long, widest at middle, sides strongly arcuate at middle, angles distinct but obtuse, disk with two deep, transversely confluent impressions on each side of the middle, these impressions variable, being nearly obsolete in some examples, an impression within the front angles, punctuation rather fine and sparse, not much closer laterally

Elytra two and three-fourths times as long as the thorax, and about one-fifth longer than wide; elytral costæ inconspicuous, first intercostal space with confused punctures, the second and third with the row of punctures somewhat irregular. Pygidium somewhat sparsely punctured. Body beneath sparsely rather finely punctate at sides, still more sparsely at middle. Legs slender; upper tooth of front tibia sub-median; hind thighs with but few punctures at middle; ungual tooth nearly median in position, its tip nearly equally distant from base and apex of claw. Length 7.6–8.7 mm.; width 4.2–4.6 mm.

The type of this species was found near the Gila River in Arizona. The only other specimens known to me were taken by Dr. Fenyes at Palm Springs, California, on the western border of the Colorado Desert.

The thoracic impressions are deep and conspicuous in some examples, but in others, including the type, they are nearly wanting. The margins of the body are moderately fimbriate, the legs more conspicuously so than usual. The rotundate clypeus and short median ungual tooth are the two most important characters, and these when combined with the form and sculpture of the prothorax, make the species easy of indentification.

46. **D. fimbriata** n sp.

Broadly ovate, black, shining, scarcely detectably alutaceous, even on the elytra; sides of body very conspicuously fimbriate with very long hairs. Mentum declivous anteriorly, the margin of the declivity raised. Front and clypeus in same plane, clypeal suture distinct but lightly impressed; clypeal margin rotundate, faintly sinuate or subsinuate at middle, narrowly reflexed; head densely punctate. Prothorax not quite three-fourths wider than long, widest at middle, base a little wider than apex, sides rather strongly arcuate, all angles obtuse; disk evenly convex, densely punctate laterally, the punctures distant from one to two times their diameters at the middle. Elytra ovate, about one-seventh longer than wide and barely two and one-half times as long as the prothorax; costæ not at all evident; punctures of first broad interspace confused, elsewhere in regular rows, except just within and behind the humeri. Pygidium densely coarsely punctate. Body beneath densely very coarsely punctate at sides, more sparsely at middle. Upper tooth of front tibia submedian or slightly nearer the base than the apex; ungual tooth median in position, its apex slightly nearer the base than the tip of the claw. Length 8–10 mm.; width 4.5–5.6 mm.

Described from three examples taken by the writer at Palm Springs, California, in April.

47 **D. brevidens** Lec

Oblong, moderately elongate, strongly convex, black or brown, shining, surface polished with only faint trace of alutaceous sculpture Mentum declivous in front, summit of declivity elevated and setaceous Clypeal margin slightly sinuate at middle, rounded at sides, clypeal suture finely impressed, a little more deeply so at sides and smoother Head densely punctate, front nearly evenly broadly convex Prothorax one-half wider than long, widest at middle sides subangulate, nearly straight and feebly convergent posteriorly more strongly convergent and straight in front, angles well defined but obtuse Punctuation rather sparse, not coarse, the punctures separated by about their own diameters at sides, and by from one to two times their own diameters at middle, middle and anterior lateral foveæ distinct, the latter somewhat more distinct from the side margin than the former and close to the front margin Elytra two and one half times as long as the prothorax, and one-third longer than wide, costæ feebly indicated, punctures in regular rows except in the broad subsutural interspace Punctuation beneath moderate, sparse at middle, closer at sides Upper tooth of front tibiæ a little nearer the base than the apex, hind thighs very finely sparsely punctate at middle ungual tooth median, its tip a trifle more remote from the apex than from the base of the claw Length 9 6–10 5 mm width 4 8–5 3 mm

The sexes in this species are very easily distinguished the male having the terminal joint of the maxillary palpi broadly ovate pointed, much less than twice as long as wide, the front and middle femora and tibiæ quite densely hairy on the inner side, and the abdomen flattened at middle, with more numerous short erect hairs, especially on the second and third segments In the female the terminal joint of the maxillary palpi is more elongate oval, nearly or quite twice as long as wide, the legs are normally hairy, and the abdomen convex

The type was described from the valley of the Gila It has been taken at Tucson, Arizona, by Hubbard and Schwarz and Wickham, and at Phœnix by the late Dr Griffith

48 **D. fossipalpa** n sp

Oblong, moderately stout, scarcely wider posteriorly, brown or nearly black, shining, elytra minutely alutaceous Mentum transversely broadly concave behind, declivous from the anterior third, hind margin of declivity moderately prominent Clypeal margin rounded, with a rather broad and shallow median sinuation, clypeal suture distinctly impressed, biarcuate or posteriorly sinuate at middle, head rather densely punctate, without evident post-clypeal convexity or frontal impressions. Prothorax one-half wider than long, sides strongly rounded at middle, distinctly sinuate before and behind; front angles as viewed from above obtuse but well defined, not at all produced; hind angles nearly right; all the lateral foveæ evident, punctuation fine and rather sparse, the punctures distant by about their own diameters laterally, finer and separated by from two to three times their own diameters at middle. Elytra two and one-half times as long as the prothorax, widest at middle, sides very broadly arcuate; costæ not defined; punctures moderately coarse and confused in the subsutural interspace, and somewhat irregular in the humeral interspace, otherwise arranged in regular series. Propygidial marginal groove feeble. Punctuation beneath very sparse and fine at middle, closer but neither coarse nor dense laterally. Teeth of anterior tibiæ obtuse, the upper one median in position or possibly very slightly nearer the base than the apex. Ungual tooth median in position, very nearly as in *brevidens*. Length 11.2–12.5 mm.; width 5.6–6.2 mm.

Phœnix, Arizona. Two examples sent by Mr. Liebeck. This species is closely related to *brevidens*, though more similar in appearance to the following species (*illustris*). It agrees with *brevidens* in ungual formation and in the elytral punctuation, but in the latter species the sides of the thorax are not perceptibly sinuate either in front or behind. The head in *brevidens* is but slightly more than half as wide as the thorax, and the impression of the terminal joint of the maxillary palpus is of normal size and does not extend beyond the middle. In *fossipalpa* the head is about three-fifths as wide as the thorax and the impression of the terminal palpal joint is deeply eroded and extends almost from base to apex. The present species is very similar in size and form to *illustris*, and it is not impossible that it may be the female of that species, which is known only by the male. The difference in elytral punctuation and position of ungual tooth are, however, not known to be sexual elsewhere, and it would be unwarranted to assume such relation without absolute proof.

49 **D. illustris** n. sp.

Oblong, moderately robust, not wider behind, dark brown, moderately shining, elytra minutely alutaceous. Mentum flat posteriorly, declivous from anterior third, declivity strongly margined. Clypeal margin rather feebly sinuate at middle, rounded at sides, clypeal suture distinct from side to side, finely impressed; front without post-clypeal convexity but with two distant moderately distinct impressions; punctuation dense except at middle of occiput. Prothorax fully one-half wider than long, strongly rounded at middle, oblique and feebly sinuate both anteriorly and posteriorly; hind angles sharply defined, a little obtuse, front angles obtuse; punctuation moderate, punctures separated by about their own diameters at sides, less close at middle; all the lateral foveæ evident though less marked than in *fossipalpa*. Elytra two and three-fourths as long as the prothorax, not wider behind, costæ distinct, all the intercostal spaces with confused punctures. Ungual tooth obviously post-median in position, the tip of the tooth barely two-thirds as far from the apex as from the base of the claw. Length 12 mm.; width 6.2 mm.

Described from a single example taken by Prof. Snow in southeastern Arizona (Baboquivaria Mountains). The unique type is a male, having the abdomen flattened and densely finely punctate and hairy at middle, the front and hind legs—especially the femora and tibiæ—densely hairy within. The impression of the last joint of the maxillary palpus is large and deep, extending two-thirds the length of the joint. As indicated under *fossipalpa*, this species resembles that very closely, but differs in its less sinuate sides of the prothorax, in having all the intercostal intervals confusedly punctate, and in the more posterior position of the ungual tooth. The male sexual characters are unusually pronounced in *illustris*, and may prove to be quite different in *fossipalpa*.

50. **D. beyeri** Schaef.

Form oblong, parallel; reddish brown, only moderately shining; elytra finely, prothorax just visibly alutaceous. Mentum declivous from about the anterior third, margin of declivity rather feebly raised. Head scarcely more than half as wide as the prothorax, clypeus broadly reflexed, sinuate at middle, angles broadly rounded, sides sinuate; clypeal suture distinct; front evenly subconvex, without impressions; punctuation moderately dense, narrowly smoother along the suture. Prothorax fully one-half wider than long, sides moderately strongly rounded at middle, oblique and nearly straight before and behind, more strongly convergent in front; front angles obtuse, hind angles sharply defined, a little obtuse; disk rather strongly convex, punctures separated by about their own diameters laterally, a little sparser toward the middle. Elytra parallel, twice as long as and very little wider than the prothorax; discal costæ evident, punctuation confused in all the intercostal spaces, but often only slightly so, or only toward the base in the outer ones. Metasternum moderately punctured at sides, sparsely at middle; abdomen sparsely punctate even at sides. Upper tooth of front tibia nearer the base than apex; ungual tooth post-median, its tip about two-thirds as far from the point as from the base of the claw. Length 9–10 mm.; width 4.6–5 mm.

Brownsville, Texas. Taken in some numbers by Messrs. Schaeffer and Beyer.

The cylindrical form, broad thorax and relatively narrow head, with widely reflexed clypeus, give this species a quite distinctive facies. The impression or cicatrix of the terminal joint of the maxillary palpus is small and not at all eroded.

51. **D. sulcatula** n. sp.

Rather robust, oblong-ovate, moderately shining, elytra finely alutaceous, prothorax barely visibly so. Mentum flat posteriorly, declivity beginning at the anterior two-fifths, strongly margined. Clypeus sinuato-rotundate, strongly widely reflexed; clypeal suture fine, widely obliterated at middle; front evenly subconvex, punctuation close but not dense. Prothorax slightly more than three-fifths wider than long, widest at middle, sides strongly convergent and nearly straight anteriorly, a little convergent and very broadly arcuate behind, all angles obtuse but well defined; punctures fine, separated by from one to two times their own diameters, a little sparser at the middle of the disk as usual. Elytra not quite two and three-fourths times as long as the prothorax, two-sevenths longer than wide; costæ moderately distinct, first intercostal space rather sparsely confusedly punctate; second variable, punctuation either quite irregular or only slightly so; humeral interval with confused punctuation. Pygidium sparsely punctate and with a shallow median longitudinal sulcus. Beneath finely punctate, very sparsely so at middle, not very closely at sides Upper tooth of front tibia submedian, perhaps a trifle nearer the base than the apex; ungual tooth obviously post-median, its tip about three-fourths as distant from the point as from the base of the claw. Length 8.9-10.5 mm.; width 4.9–5 8 mm.

Hab.—Texas; El Paso, Texas; Mesilla, New Mexico; Arizona (Liebeck coll.). Nearly all specimens are from the vicinity of El Paso, Texas, where the species appears to be not uncommon.

The impressed line of the pygidium, though seemingly a trivial character, appears to be very constant and is, with the broadly reflexed clypeus, sufficient for the recognition of the species.

52 **D. mœrens** Lec

Oblong, very little wider behind, dark brown or blackish, elytra finely, prothorax more minutely alutaceous, lustre rather dull Mentum declivous from the anterior third or two fifths, declivity margined, labrum more deeply emarginate than usual Front and clypeus nearly flat and in the same plane, the latter very narrowly reflexed, the margin feebly sinuate at middle, sides rounded punctuation of head very dense, clypeal suture obsolete at middle Prothorax nearly three fourths wider than long, widest near the middle, sides slightly convergent posteriorly, more strongly so in front, punctuation rather fine, dense along the anterior margin, sparser along the middle, where the punctures are separated by from one to two times their own diameters, a little closer laterally Elytra two and one half times as long as the prothorax, very slightly wider behind, costæ distinct, first intercostal space with confused punctuation second and third variable but usually with the punctuation irregular, at least basally Pygidium very coarsely rugosely punctate Metasternum strongly moderately closely punctate at sides, sparsely and finely at middle abdomen more coarsely so laterally, nearly smooth at middle Upper tooth of front tibia just perceptibly nearer the apex than the base Ungual tooth post median, its tip two thirds as far from the apex as from the base of the claw Length 9 5–11 mm width 5–5 7 mm

The following localities are represented Tucson, Florence and Phœnix, Arizona, St George, Utah, Los Angeles County and Palm Springs, California

The type was described from Vallecitas, in the southeastern desert region of California

The labrum is more deeply emarginate than in any other of the non-hairy species except *peninsularis*, *knausii* and *fissilabris*, but is distinctly less deeply impressed than in the two last named species

53 **D. punctipennis** Lec

Oblong oval, scarcely wider posteriorly, black or brown, moderately shining, upper surface coarsely densely punctate throughout, elytra finely alutaceous Mentum declivous from about the anterior third, declivity margined Clypeal margin sinuato rotundate clypeal suture fine, distinct, head densely punctate, front with a vague median impression Prothorax three fifths wider than long, sides broadly arcuate, subparallel in basal half, punctuation coarse and dense Elytra a little less than two and two thirds times as long as the prothorax, punctuation coarse and close, irregular on all the intercostal spaces, but less markedly so in the outer two, costæ evident Body beneath coarsely punctate throughout, more closely at sides. Upper tooth of front tibiæ obviously nearer the base than the apex; ungual tooth strongly post-median, its tip about twice as distant from the base as from the apex of the claw. Length 10–11 mm.; width 5.3–5.8 mm.

The two type specimens are from Texas, collected by Haldeman. A single specimen, also from Texas, is in the National Museum collection.

The most conspicuous feature of this species is the unusually coarse and dense punctuation of the entire upper surface. The metasternum is also more coarsely punctate at middle than in any of the allied forms. The ungual tooth is so strongly post-median that the species might with about equal propriety be included under the subsequent caption, "Ungual tooth apical or subapical, etc." in which case the coarse and dense sculpture would still separate it from any species there given.

54. **D. corvina** Lec.

Robust, rather strongly convex, oblong oval, not wider behind, black, shining, elytra minutely alutaceous, prothorax scarcely visibly so; surface throughout minutely punctulate in addition to the usual punctuation. Mentum with acutely margined declivity in front. Clypeus broadly rotundate, sometimes with slight trace of median sinuation; clypeal suture moderately impressed; front nearly evenly subconvex, punctuation of head moderately coarse, dense. Prothorax three-fifths wider than long, widest at middle, sides broadly evenly arcuate, base a little wider than the apex; punctuation coarse, dense at sides, the punctures well separated at middle; a somewhat vague median impressed line; the angles obtuse. Elytra not very much wider than the prothorax and a little less than two and one-half times as long, nearly one-fourth longer than wide; costæ indistinct, recognizable only by the rows of fine interstitial punctures; punctuation coarse, disposed in regular rows except in the broad subsutural interspace. Pygidium very coarsely subrugosely punctate. Punctuation below about as usual. Legs stout, upper tooth of front tibiæ submedian, or perhaps a trifle nearer the base than the apex. Ungual tooth post-median, obliquely truncate, its tip two-thirds as distant from the apex as from the base of the claw. Length 12–13 mm.; width 6.5–7.2 mm.

All specimens seen are from the vicinity of Yuma, Arizona.

The large size, convex parallel form, shining black color, the regular arrangement of elytral punctures exterior to the subsutural interspace, and the median impressed pronotal line readily distinguish this fine species, which is at present rare in collections. The prominence of the posterior spiracles and the length of the terminal spinules of the hind tibiæ, mentioned by LeConte, are not characters of importance.

55. **D. carbonata** Lec.

Ovate, black or brownish black, lustre usually dull, sometimes moderately shining, elytra distinctly, prothorax minutely alutaceous. Mental declivity distinctly margined. Clypeal margin rounded, feebly or just perceptibly sinuate at middle; clypeal suture nearly straight, distinctly impressed; front moderately convex without impressions, punctuation close. Prothorax three-fourths wider than long, widest at or slightly behind the middle, sides strongly arcuate, angles obtuse; punctuation fine, rather sparse at middle, where the punctures are separated by about twice their own diameters, at sides by their own diameters or less. Elytra two and three-fourths to three times as long as the prothorax, a little wider behind, costæ distinct, first intercostal space with confused punctuation; second and third variable, the punctuation sometimes irregular throughout, at others only so toward the base. Body beneath moderately punctate at sides, the ventral segments nearly smooth at middle. Upper tooth of front tibia a little nearer the base than the apex; ungual tooth strongly post-median, large, obliquely truncate, its tip about two-thirds as far from the tip as from the base of the claw Length 6–7.5 mm.; width 3.5–3.9 mm.

This species occurs from western Nebraska to Arizona, and is rather common in Colorado and New Mexico; the specific localities represented in the material studied being Ft. Robinson, Nebraska; Colorado Springs, Colorado; Luna, Albuquerque, Colora'o and Mesilla Park, New Mexico; Hot Springs, Arizona.

56. **D. rufiola** n. sp.

Closely related to *carbonata*, with which it agrees so nearly in form, size and sculpture that only the distinguishing characters need be mentioned.

The color is pale rufous; the mental ridge feebler; the prothorax smaller, rather less than one-third as long as the elytra; the punctuation beneath, especially of the ventral segments, still sparser and finer; the ungual tooth less stout and more apical, the tip of the tooth fully twice as far from the base as from the apex of the claw.

The type is one of a series taken by Mr. Knaus at Deming, New Mexico, where it has also been taken by Hubbard and Schwarz; it also occurs at Alamogordo, New Mexico (Horn coll.), at Glenwood Springs, Colorado (Fenyes coll.), and at Ft. Grant, Arizona (National Mus. coll.). A series collected by Prof. Snow in the Baboquivaria Mountains, southeastern Arizona, and by Wickham at Nogales, Arizona, differs in being brown in color and in having the thorax relatively a trifle longer; this is a variation in the direction of *carbonata*, but the claws are as in typical *rufiola*, of which it seems only a variety.

57. **D. acerba** n. sp.

Rather stout, suboval, rufous to blackish brown, strongly shining, alutaceous sculpture barely detectable. Mental ridge moderate. Clypeal margin rounded, with very slight median sinuation or truncation; clypeal suture moderately distinct; punctuation of head moderately close but not crowded. Prothorax three-fifths wider than long, widest at middle, sides moderately arcuate, angles obtuse, front margin obviously bisinuate, punctuation coarser than in *carbonata*, the punctures distant from a little less to a little more than their own diameters. Elytra one-half wider than the prothorax, and about two and two-thirds times as long; sides nearly parallel; punctuation coarse and dense, the costæ evident, all the intercostal spaces confusedly punctate, the two outer ones much more broadly so than in *carbonata*. Punctuation beneath moderately close laterally, quite coarse toward the abdominal apex. Upper tooth of front tibiæ a little post-median in position. Ungual tooth strongly post-median, obliquely truncate, the apex about twice as far from the base as from the point of the claw. Length 6.5–7.5 mm.; width 3.7–4.2 mm.

Described from a small series in the Horn and National Museum collections. All specimens are labeled either "Texas" or "S. W. Texas."

This species is remarkable for the very coarse and close punctuation of the elytra, they being quite as coarsely punctate relatively as in *punctipennis*, which species, however, is much larger and with more densely punctate thorax, the latter also less strongly rounded at middle, and wider relative to the elytral width. This latter distinction also holds in comparison with all other related species.

58. **D. ingenua** n. sp.

Oblong, subovate, rufo-ferruginous, moderately shining, elytra finely alutaceous. Mentum feebly declivous from anterior third or fourth, margin of declivity slightly or scarcely elevated. Clypeal margin sinuato-truncate at middle, with rounded angles; front and clypeus in nearly same plane, the suture distinctly impressed; clypeus closely but not densely punctate, front less closely, the punctures everywhere well separated. Prothorax strongly transverse, about four-fifths wider than long, widest at or very slightly behind the middle, sides moderately arcuate, strongly convergent in front, moderately so behind, angles all obtuse, the anterior ones less so and a little prominent; punctuation rather fine, moderately close laterally, sparser toward the middle. Elytra more than three times as long as the prothorax, a little wider posteriorly, costæ evident, first intercostal interval with the usual confused punctuation, second and third variable, but usually with the irregularity fairly well marked. Body beneath finely sparsely punctate medially, more closely at sides. Upper tooth of front tibia distinctly ante-median in position; ungual tooth subapical, the tip fully twice as distant from the base as from the apex of the claw. Length 7–9 mm.; width 3.9–5 mm.

Hab.—Arizona.

The type is from the Huachuca Mountains, where the species has been taken by Oslar, Schaeffer and Skinner. other specimens are from Ft. Grant (Hubbard and Schwarz), and Prescott (Blanchard coll.).

59. **D. planidens** n sp

Oblong-ovate, black, elytra finely but distinctly alutaceous and somewhat dull Mental declivity long, beginning near the middle, margin elevated and setiferous Clypeal margin sinuato-truncate at middle with broadly rounded angles; head very densely punctate, clypeal suture subobsolete at middle, no post-clypeal ridge, the front broadly evenly subconvex Prothorax three-fifths wider than long, widest slightly behind the middle, sides moderately arcuate, very feebly sinuate anteriorly, angles well defined, a little obtuse; punctures separated by rather more than their own diameters at sides Elytra slightly more than two and one-half times as long as the thorax, very little wider than the thorax at base, gradually wider behind; costal intervals evident but nearly flat; first intercostal space with punctures broadly confused, narrowly so on the others. Punctuation beneath coarser than above, close at sides, sparser and finer toward the middle. Upper tooth of front tibia just visibly nearer the apex than the base. Ungual tooth subapical; outer claw of middle tarsus broadly laminiform basally, the tooth projecting acutely from its anterior edge. Length 6.8 mm.; width 3.6 mm.

Described from a single example from Jerome, Arizona, submitted by Dr. Fenyes.

The modification of the outer claw of the middle tarsus is unique in the genus; it is possibly a sexual character.

60. **D. ambigua** n. sp.

Oblong ovate, brown or piceous, moderately shining, the elytra distinctly minutely alutaceous, prothorax barely visibly so. Mental declivity beginning about at the anterior two-fifths, hind margin of declivity prominent. Clypeus rather broadly reflexed, arcuately emarginate at middle, the angles rather abruptly rounded in the male, more broadly so in the female. Head densely punctate, clypeal suture distinctly impressed, front broadly feebly evenly convex. Prothorax one-half wider than long, widest at about the basal two-fifths, or more rarely at about the middle; sides arcuate posteriorly, convergent and nearly straight in front, angles all sharply defined though obtuse; punctuation moderate. Elytra two and one-half times as long as the prothorax, usually evidently wider behind; costæ distinct, first intercostal space rather coarsely closely confusedly punctate, second and third irregularly punctate, but less broadly so than the first. Body beneath closely rather coarsely punctate laterally, more sparsely and finely so medially. Pygidium coarsely densely punctate. Upper tooth of front tibiæ submedian. Tarsi moderately densely hairy beneath in the male, less evidently so in the female. Ungual tooth subapical, broad and obliquely truncate in the female, less broad and more obtusely rounded at tip in the male, its apex more than twice as distant from the base as from the apex of the claw. Length 8–8.6 mm.; width 4.3–4.6 mm.

Rincon Mountains, southern Arizona; ten examples collected by Mr. Beyer.

The terminal joint of the maxillary palpi is ovate pointed, the cicatrix rather large and deeply impressed, not differing materially in the sexes. A single example from Arizona in the Horn collection which I refer here, has the palpal cicatrix smaller and less deeply impressed, and the clypeal margin somewhat less broadly reflexed. The form of the clypeus is so variable that with certain specimens in hand—more especially males—the species might naturally be referred to the group with angulate clypeus, where the hairy tarsi would associate it with *tarsalis*, from which, however, it is readily separated by the sexually unmodified terminal joint of the maxillary palpi and by the greater sexual difference in the hairy vestiture of the tarsi.

61 **D. cephalotes** n sp

Oblong-ovate, dark brown, with faint æneous reflections in certain lights, polished, alutaceous sculpture scarcely detectable at any point Mentum quite strongly obliquely declivous anteriorly from about the middle, and somewhat oblique posteriorly, margin of declivity obtuse not raised Clypeal margin sinuato-truncate at middle, the angles rounded, clypeus with rather strong transverse tumidity, behind which the suture is deeply impressed, front rather deeply triangularly impressed at middle, punctuation of head moderately coarse, close, but not crowded on the clypeus, the punctures on the front separated on the average by about their own diameters Prothorax three-fifths wider than long, sides parallel in basal half, moderately rounded at middle, and convergent anteriorly, angles well defined, the posterior ones only a little obtuse, punctuation not close, the punctures distant from one to two times their own diameters Elytra three times as long as the prothorax, slightly widened posteriorly, costæ evident, all the intercostal intervals with confused punctuation, the outer ones narrower as usual, other intervals with the fine serial punctures closely placed and forming single regular rows Metasternum closely punctate at sides, abdomen closely quite coarsely punctate, not very much more finely or sparsely so at middle than at sides Upper tooth of front tibia distinctly nearer the apex than to the base ungual tooth broad, truncate, much curved, its tip about two thirds as far from the apex as from the base of the claw Length 7 6 mm width 4 25 mm

Hab —Southern Illinois, a single example in the Bowditch collection

The tumid clypeus and strong triangular frontal impression will, if constant, easily identify this species, the faint æneous lustre is also a very exceptional character The mentum is abnormal for this part of the genus and suggests the form prevailing in *levicoxa* et seq

62 **D. marginicollis** n sp

Oblong, slightly or scarcely widened behind, black or dark brown, moderately shining, the elytra plainly, the prothorax visibly alutaceous Mental declivity narrow, beginning at the anterior fourth, finely margined behind Clypeus rather broadly sinuato truncate, the angles rounded, rather densely punctate, suture well defined, front broadly subconvex, not very closely punctate Prothorax nearly three-fourths wider than long, sides subparallel in basal half, broadly arcuately convergent in front, hind angles subrectangular, front angles obtuse not prominent, an apical submarginal impressed line, the sides slightly impressed along the margin posteriorly, punctuation fine, the punctures separated by from one to two times their own diameters

Elytra three times as long as the prothorax, costæ distinct, slightly prominent, all the intercostal spaces broadly confusedly punctate, the second not much narrower than the subsutural one. Body beneath densely but not very coarsely punctate at sides, more sparsely and finely at middle. Upper tooth of front tibia very slightly ante-median; ungual tooth broad, obliquely truncate subapical, its tip fully twice as distant from the base as from the tip of the claw. Length 7.2–9 mm.; width 4–4.6 mm.

Hab.—Huachuca Mountains (type), Ft. Grant, Prescott and Williams, Arizona; Water Cañon, New Mexico (Snow).

63. **D. pubipes** Schaef.

Oblong-ovate, black, strongly shining, elytra imperfectly scarcely visibly alutaceous. Mental declivity steep, beginning at about anterior third, strongly margined behind. Clypeus broadly subtruncate at middle, the truncation broadly feebly emarginate, the angles rather narrowly rounded; front sparsely and finely punctate, smoother along the suture, clypeus more densely punctate, the former slightly impressed or concave at middle just behind the clypeal suture, which is finely impressed laterally, obsolete at middle. Prothorax one-half to three-fifths wider than long, sides nearly straight or feebly arcuate and parallel in basal half, moderately convergent in front, all the angles a little obtuse, the hind ones slightly rounded, surface finely not very closely punctate, scutellum distinctly smaller than usual, the adjacent surface of both prothorax and elytra impressed. Elytra one-third longer than wide, two and one-half times as long as the prothorax, evidently wider behind, costæ moderately distinct, all the intercostæ rather wide and rather densely moderately coarsely punctate. Propygidium with sharply impressed apical groove; pygidium sparsely punctate. Body beneath densely rather coarsely punctate at sides, more sparsely and finely at middle. Upper tooth of front tibia strongly ante-median. Tarsi densely pubescent beneath in the male, less densely so in the female; ungual tooth subapical, broad, truncate at apex, its tip nearly twice as far from the base as from the point of the claw. Length 8.5–9 mm.; width 4.6–5 mm

Brownsville, Texas. Collected by Schaeffer, Beyer and Wickham.

One of the most distinct species of our fauna, easily recognized by the very small scutellum, the circumscutellar impression and pubescent tarsi. In this, as well as in other species described by him, Mr. Schaeffer has considerably overestimated the width of the prothorax in terms of its length, as well as the length of the elytra in terms of its width.

64. **D. trementina** n. sp.

Oblong, subparallel, dark brown, only moderately shining, both thorax and elytra with fine alutaceous sculpture. Mental declivity beginning near the middle, strongly margined. Clypeal margin rather feebly sinuate at middle, arcuate at sides; head densely punctate, front nearly flat at middle. Prothorax not quite three fourths wider than long, sides broadly arcuate, subparallel posteriorly, punctuation fine, sparse at middle, rather close laterally. Elytra barely one-fifth wider than the prothorax and about two and two fifths times as long, punctuation forming nearly regular rows except in the sutural interspace, a slight irregularity toward the base in the second and third intercostal intervals. Body beneath sparsely punctate, more closely at sides of metasternum and both coarsely and closely at sides of fifth ventral. Upper tooth of front tibia submedian; middle tarsus subequal in length to the tibia, hind tarsus shorter than the tibia. Ungual tooth broad, obliquely truncate, its tip nearly twice as distant from the base as from the point of the claw. Length 9.5 mm., width 5.1 mm.

The type is from La Trementina, New Mexico (Cockerell), a second example is from Tucson, Ariz. (Nat. Mus. collection).

65. **D. punctulata** Horn.

Robust, black, moderately shining, upper surface minutely alutaceous and with a system of very fine punctures occupying the intervals between the usual punctures. Mental declivity narrow, steep, strongly margined. Clypeal margin sinuate at middle, angles broadly rounded; clypeal suture distinctly impressed, broadly posteriorly arcuate at middle; head densely punctate; front nearly flat. Prothorax three fifths wider than long, fully as wide at base as at middle, sides subparallel in basal half, moderately rounded at middle, convergent and nearly straight anteriorly; front angles obtuse, hind angles nearly rectangular; punctuation rather fine, the punctures separated by about their own diameters at sides, and by from one to three times their diameters at middle. Elytra a little wider posteriorly, not quite two and three fourths times as long as, and three-tenths wider than the prothorax, costæ distinct, all the intercostal intervals wide and confusedly punctate. Body beneath densely but not coarsely punctate at sides, sparsely at middle. Upper tooth of front tibiæ submedian, hind thighs impunctate at middle. Ungual tooth subapical, obliquely truncate, its tip about three times as far from the base as from the point of the claw. Length 13.5–15 mm., width 7.5–8.3 mm.

Lower California, San Jose del Cabo (Fuchs), Santa Rosa, San Felipe, El Taste (Beyer).

The very fine punctuation of the upper surface which prompted the name given by Dr. Horn is by no means peculiar to this species, though it seems to be better developed here than elsewhere. As a rule, when present, these finer punctures are much more evident on the prothorax than on the elytra, but in the present species are equally so in both.

66. **D. peninsularis** n sp.

Oblong oval, rather robust, dark brown, prothorax blackish, lustre somewhat dull, upper surface finely alutaceous Mental declivity short, distinctly margined and quite evidently concave from side to side Labrum deeply emarginate, clypeal margin distinctly sinuate at middle, the sides rounded, clypeal suture distinctly impressed, broadly arcuate at middle, front bi-impressed in a line between the upper portions of the eyes; head throughout densely punctate Prothorax barely three-fifths wider than long, widest at the basal angles, sides deeply sinuate and slightly convergent or subparallel to about the anterior third, thence rounded to apex, front angles obtuse, hind angles right or even slightly acute; punctuation moderately coarse and rather dense, the punctures separated as a rule, by less than their own diameters, but as usual are a little sparser along the median line. Elytra one-fifth longer than wide, two-fifths wider and two and two-thirds times as long as the prothorax, slightly widened behind, coarsely quite densely punctate, the costæ well marked, the intercostæ all wide and confusedly punctured Body beneath punctate as usual Upper tooth of front tibia submedian, hind thighs punctate at middle, ungual tooth subapical, its tip about twice as distant from the base as from the apex of the claw. Length 12 mm , width 6½ mm

Santa Rosa, and San Felipe, Lower California (Beyer).

This species is evidently rather nearly allied to *mœrens*. The form of the labrum is the same in both, but the prothorax in the present species is of somewhat different shape and much more densely punctate, and the ungual tooth is more apical.

67 **D. anxius** Lec.

Oblong-oval, brown or piceous, coarsely densely punctate and minutely alutaceous, only moderately shining. Mental declivity beginning at about the anterior third, distinctly margined behind. Clypeus broadly arcuate, sinuate at middle. Front and clypeus very densely punctate, the former broadly feebly bi-impressed, clypeal suture finely impressed, nearly straight. Prothorax about three-fifths wider than long, sides broadly arcuate, subparallel posteriorly, hind angles slightly obtuse, surface very densely subrugosely punctate, a shallow impressed nearly entire median line. Elytra about two and two-thirds times as long as the prothorax, barely two-fifths longer than wide, sides broadly arcuate and subparallel; costæ fairly distinct, slightly more convex, intercostæ all with confused punctuation. Pygidium coarsely subrugosely punctate; propygidium with coarsely punctate apical groove. Body beneath coarsely densely punctate laterally, the metasternum much more finely so at middle. Upper tooth of front tibiæ slightly antemedian; hind thighs numerously punctate at middle. Ungual tooth subapical, small, acute and parallel with, but shorter than the upper portion of the claw on the front feet of the male, on the middle and hind feet of the male and throughout in the female of normal form,

☞ Remarks to follow description of **D. anxius** (No. 67).

- -- -

Hab.—Arizona and Utah; the types from the Gila Valley.

The sexual difference in the anterior claws is unique and afforded a basis for the erection of the genus *Orsonyx* by Le Conte, who either did not have or did not examine the female. Very few species in our fauna have the prothorax so densely punctate as *anxius*, and this together with the still rarer impressed median line of the pronotum will make its identification easy in the absence of the male. The species is rather rare in collections.

very minute. Body beneath punctate about as usual. Upper tooth of front tibiæ a little in front of the middle, hind thighs sparsely finely punctate at middle; claw with a stout obliquely truncate subapical tooth, its apex nearly twice as distant from the base as from the tip of the claw. Length 11 mm.; width 5 9 mm

The type was given me some years ago by Mr. Beyer, who took it at Santa Rosa, Lower California.

The form of the prothorax is the most striking character of this species, and, taken together with the size, color and fine sparse thoracic punctuation, should make the species easily recognizable. There is on the thorax a very minute secondary punctuation which does not appear on the elytra.

69. **D. maura** n. sp.

Oblong, subovate, black, moderately shining, the elytra minutely, the prothorax barely visibly alutaceous. Mental declivity beginning about the middle, rather steep, distinctly margined. Clypeal margin broadly sinuate, angles rounded. Clypeal suture fine, less distinct at middle, front nearly flat, punctuation dense. Prothorax two-thirds wider than long, sides broadly arcuate, subparallel in basal half; punctuation rather fine, dense laterally, becoming less close toward the middle, where there is a narrow smooth space posteriorly, which, however, does not reach the basal margin. Elytra three-tenths wider than long, two and two-thirds times as long as and not quite one-fourth wider than the prothorax, slightly widened behind, costæ distinct, intercostæ all wide and rather closely irregularly punctate. Sides of body beneath rather coarsely closely punctate, metasternum minutely sparsely punctate at middle, abdomen sparsely but much more coarsely so. Upper tooth of front tibiæ strongly ante-median; ungual tooth stout, obliquely truncate, its tip nearly twice as far from the base as from the apex of the claw. Length 8.7–9 mm.; width 4.7–5 mm.

Texas (Belfrage).

70. **D. pinguescens** n. sp.

Rather broadly ovate, ferruginous, moderately shining, indistinctly alutaceous, upper surface densely not coarsely punctate. Mentum declivous from just before the middle, declivity strongly margined. Clypeal margin broadly sinuate with rounded angles. Head densely punctate, clypeal suture finely impressed Prothorax nearly three-fourths wider than long, sides broadly arcuate, subparallel in basal half; hind angles slightly, front angles strongly obtuse, punctuation dense throughout, the punctures, as a rule, closer than their own diameters, even at the middle Elytra one-fourth longer than wide, a little more than one-third wider than the prothorax and very nearly three times as long, distinctly wider behind; costæ rather feeble but evident, the intercostæ all wide, three to four times as wide as the costæ, closely confusedly punctate. Body beneath densely punctate at sides, this denser coarser punctuation covering all but about the middle fifth of the metasternum. Upper tooth of front tibia distinctly ante-median; ungual tooth long, its tip scarcely twice as far from the base as from the apex of the claw. Length 7.6–8.4 mm.; width 4.5–4.7 mm.

Texas.

71. **D. frondicola** Say.

Oblong-ovate, brown or ferruginous, moderately shining, elytra barely visibly alutaceous. Mental declivity beginning a little in front of the middle, distinctly margined. Clypeal margin moderately sinuate at middle with rounded angles; clypeal suture distinctly impressed, arcuate at middle, front closely, clypeus usually a little more densely punctate Prothorax three-fifths wider than long, sides rather broadly arcuate, subparallel in basal half, punctuation quite dense throughout, the punctures not crowded, however, but separated, as a rule, by less than their own diameters Elytra three tenths longer than wide, almost one-third wider than the prothorax and two and three-fourths times as long, rather densely and uniformly punctate, costæ distinct, intercostæ wide, irregularlv punctate, the serial punctures of the costæ closely placed and but little finer than those of the wide intervals Sides of body beneath densely punctate, the punctuation sparser at middle Upper tooth of front tibiæ nearly twice as distant from the base as from the apex of the tibia, ungual tooth long, scarcely shorter than the superior portion of the claw its tip barely twice as distant from the base as from the apex of the claw Length 6 5–8 mm , width 3 7–4 3 mm

This is an abundant species and ranges from New Jersey to Nebraska and Texas The following localities are represented in the material at hand New Jersey, Washington, D C , Maryland, North Carolina, Alabama, Huntsville, Alabama, Mississippi, Louisiana, Waco, Columbus, Cypress Mills, New Braunfels and Burnett County, Texas, Manhattan, Riley County, Wilson County, Kansas, West Point, Nebraska, Cincinnati, Ohio, Kentucky, near Cincinnati (Dury), Crawford County, Indiana, Missouri

72 **D. basalis** n sp

Oblong scarcely widened posteriorly, rufotestaceous, strongly shining, alutaceous sculpture scarcely visible Mentum feebly declivous in front from about the middle, declivity feebly margined Clypeal margin rather widely reflexed, sinuate at middle with angles rounded, clypeal suture distinct, sinuate at middle, punctures of front well separated, of clypeus a little closer but not dense Prothorax nearly three fourths wider than long, sides broadly arcuate, subparallel posteriorly, hind angles somewhat obtuse, basal margin impressed from side to side, the impression narrowed a little at middle punctuation rather dense at sides, a little less so at middle, where the punctures are separated by their own diameters or a little less Elytra fully three times as long as the prothorax, costæ not conspicuous, punctuation confused on the subsutural interval, and irregular in basal half on the outer intercostal spaces Body beneath closely punctate at sides, more finely and sparsely at middle Upper tooth of front tibiæ slightly ante-median, ungual tooth broad, obliquely truncate, its apex twice as distant from the base as from the point of the claw Length 7 5–9 mm , width 3 9–4 7 mm

The series before me—mainly from the National Museum—shows the following locality labels: Barnes, Kansas; Kansas; Nebraska; Colorado.

This species looks a little out of place in its present position, and might better be associated with *harperi*, the impression of the basal margin of the prothorax being very similar and nearly as strong as in that species, which, however, differs in its rounded clypeus, wider head, coarser and closer punctuation, somewhat different mentum and more strongly ante-median upper tooth of the front tibia.

73. **D. lengii** n sp.

Moderately elongate, ovate, piceous or black above, a little paler beneath, legs brown, upper surface, more especially the prothorax, with a more or less evident æneous lustre. Mental declivity ill defined, usually beginning at the anterior two-fifths, but sometimes shorter, its hind margin either feebly prominent or not at all so; clypeal margin rounded, feebly sinuate at middle; clypeal suture nearly straight, *finely impressed*; punctuation of head rather dense. Prothorax a little less than two-thirds wider than long, sides subparallel in basal half, moderately convergent and nearly straight in front, surface scarcely or faintly alutaceous, strongly shining, rather coarsely punctate, the punctures close at sides, separated by their own diameters or more on the disk Elytra one-third longer than wide, one-third wider than the prothorax and barely three times as long, geminate striæ fairly distinct, the three wider interspaces all confusedly punctate. Body beneath moderately coarsely closely punctate at sides, more sparsely and finely at middle Upper tooth of front tibia median in position, hind thighs slender, punctate at middle; ungual tooth nearly as long as the superior portion of the claw, its tip about three times as far from the base as from the apex of the claw. Length 9.3–10 mm.; width 4 9–5.5 mm.

The type is from Vowel's Mill, Louisiana, kindly given me by my long-time friend, Mr. Leng, to whom the species is gratefully dedicated. Other specimens are before me from Texas (Liebeck and Dury), Longview, Texas and Atoka, Indian Territory (Wickham).

The subobsolete mental ridge, size, and piceous or blackish color with æneous surface lustre, are sufficiently characteristic when taken together to identify the species. Very few of our species show a perceptible metallic lustre, and of the remaining three, *bowditchi* is pubescent, *cephalotes* is separable at once by the cephalic sculpture and *æneus* is much smaller and with angulate clypeus

74 **D. thoracica** n sp

Oblong-oval, brown or ferruginous, shining, the prothorax polished, the elytra with barely perceptible minute alutaceous sculpture, entire upper surface finely rather densely punctate Mental declivity beginning at anterior two fifths, summit distinctly elevated Clypeal margin rounded with a feeble median sinuation, rather strongly reflexed, head densely punctate, clypeal suture feebly impressed, especially at middle Prothorax two-fifths wider than long, sides broadly arcuate, subparallel behind, finely rather densely punctate throughout Elytra not quite one half longer than wide, one fourth wider than the prothorax and about two and one-half times as long, scarcely wider behind, costæ moderately distinct, each with a row of strong closely placed punctures intercostæ wide, broadly closely confusedly punctate Body beneath closely punctate at sides, more sparsely and finely at middle Upper tooth of front tibiæ median in position, ungual tooth obliquely truncate, nearly as long as the superior portion of the claw, its tip twice as distant from the base as from the apex of the claw Length 7 5–9 mm , width 3 9–4 5 mm

I have seen a considerable number of specimens, all from Texas, many from New Braunfels, the others without specific locality The prothorax is less transverse in this species than in any other known to me In the males the abdomen is a little concave beneath in outline when viewed from the side, the tarsi are more hairy beneath, and on the hind legs are more evidently longer than the tibiæ

75 **D. arcuata** n sp

Oblong subovate, dark brown or piceous, moderately shining, elytra distinctly, prothorax very minutely, alutaceous Mental declivity beginning at the anterior one third or two fifths, rather steep, strongly margined, clypeal margin arcuate from side to side, no median sinuation, clypeal suture distinctly impressed, clvpeus densely punctate, front nearly as densely so, the punctures becoming less close at the middle of the vertex Prothorax three-fourths wider than long, widest at or slightly behind the middle, sides rather strongly arcuate, angles all obtuse, punctures rather fine, distant by their own diameters more or less at sides, sparser at middle Elytra one-fourth longer than wide and not quite two and three-fourths times as long as the prothorax, evidently wider behind, punctuation coarser than on the prothorax, confused in the first intercostal space, more narrowly so in the second and only slightly so in the third. Pygidium sparsely punctured. Body beneath nearly smooth at middle, moderately coarsely but not very closely punctate at sides of abdomen, more closely at sides of metasternum. Upper tooth of front tibia at or a little above the middle. Hind thighs with very few punctures medially, ungual tooth rather slender, post-median, its tip about two-thirds as distant from the apex as from the base of the claw. Length 6.2–7.6 mm.; width 3.4–4 3 mm.

Hab.—Arizona. A single specimen from Phœnix taken by Mr. Wickham, others in the Horn collection without more exact locality.

The raised margin of the mental declivity is unusually strong for a species of its size; the ungual tooth is also less apical than in other species in this part of the genus.

76. **D. dubia** Lec.

Oblong-ovate, brown, shining, not or with but faint trace of alutaceous sculpture on the elytra, entire upper surface densely or closely punctate. Mental declivity moderate, beginning at about the anterior third, finely margined. Clypeal margin rotundate, clypeus densely punctate, suture distinctly impressed throughout, arcuate at middle; front evenly broadly subconvex, the punctures close but not crowded. Prothorax not quite two-thirds wider than long, widest just before the base, sides broadly rounded, subparallel toward the base, convergent anteriorly; punctuation close throughout, the punctures separated by less than their own diameters, as a rule, at all points, a little sparser along the median line posteriorly, as usual. Elytra two and two-thirds times as long as the prothorax, about one-fifth longer than wide, a little wider behind; densely, moderately coarsely punctate, the costæ ill defined, the punctuation confused on all the intercostal spaces, the serial punctures of the costæ finer than the others but coarser and closer than usual. Pygidium densely punctate; abdomen densely punctate laterally, closely so medially. Metasternum rather densely punctate at sides, more finely and less closely at middle. Upper tooth of front tibiæ small, submedian in position; tarsi more hairy beneath in the male. Ungual tooth subapical, moderately stout, obliquely truncate, its apex twice as far from the base as from the point of the claw. Length 7–7.5 mm.; width 3.9–4.2 mm.

The LeConte types were taken by Haldeman in Texas. Three examples from the same State are now before me, one from Victoria (National Museum collection), one from Fedor in my own collection, and the third without definite locality in Mr. Schaeffer's collection. The species seems decidedly rare.

Dubia very greatly resembles *frondicola*, but may be distinguished by the more hairy male tarsi, the rounded clypeus (always a little emarginate or truncato-emarginate at middle in *frondicola*) and by the upper tooth of the front tibiæ median or slightly post-median in position (distinctly ante-median in *frondicola*). This upper tibial tooth is small or subobsolete in the few specimens ct *dubia* and is especially referred to by LeConte, but the development of the tibial teeth is often somewhat variable and may prove so in this case.

77. **D. curvaticeps** n. sp.

Oblong, subovate, reddish-brown or castaneous, shining, elytra minutely alutaceous Mental declivity long, beginning at anterior two-fifths or even nearer the middle, summit of declivity moderately elevated. Clypeal margin arcuate from side to side. Clypeal suture moderately impressed, front and clypeus rather densely punctate. Prothorax one-half wider than long, similar in form to *frondicola* but less transverse; punctuation sparser than in *frondicola*, the punctures separated by from one to two times their own diameters. Elytra three-tenths longer than wide and two and two-fifths times as long as the prothorax, very slightly widened posteriorly; punctuation moderate, distinctly less close than in *frondicola*, irregular in the intercostal spaces, the costæ well defined. Pygidium coarsely not very closely punctate, Body beneath sparsely punctate at middle, more closely but not densely at sides. Upper tooth of front tibiæ distinctly ante-median; ungual tooth rather slender, subapical, obliquely truncate, its apex about twice as distant from the base as from the end of the claw. Length 6.6–8 mm.; width 3.8–4 4 mm.

Hab.—Brownsville, Texas. Collected by Beyer, Schaeffer and Barber.

78. **D. bidentata** Lec.

Ovate, strongly convex, black or castaneous, polished and strongly shining. Mental declivity feebly margined; clypeus rounded in front. Head and prothorax sparsely punctured, elytra more closely and less sparsely so; intercostal punctuation confused. Beneath more closely and densely punctate Upper tooth of front tibia smaller or subobsolete, a little behind the middle and much nearer the second tooth than the latter is from the apical one. Ungual tooth subapical, broader than and nearly as long as the superior portion of the claw, its tip three times as distant from the base as from the apex of the claw. Length 6.2-7.7 mm.; width 3.6–4.5 mm.

Hab.—Georgia (types); Florida (St. Augustine, Fernandina, Marion County, Crescent City, Enterprise, Ormond, Tampa, Cedar Keys, Key Largo); New Jersey (Alice—Liebeck collection).

The above brief description is amply sufficient to characterize this well-known species, which cannot well be confused with any other. The small size, color, polished surface and sparse punctuation of head and thorax at once separate it from any other species of the same region, while in the relative distances apart of the tibial teeth it is almost unique, the middle tooth being at least as near and generally nearer to the apical tooth than to the upper one.

79. **D. abnormis** n. sp.

Oblong, moderately elongate, rufotestaceous, elytra finely alutaceous, thorax polished. Antennæ nine-jointed. Mentum broadly convex, declivity short, rather steep, rounding into the upper surface without trace of raised margin, but with the usual row of setigerous punctures. Clypeal margin arcuate from side to side, clypeus closely punctate, subtumid along the deeply impressed suture; head sparsely punctured, usually with a more or less distinct elongate triangular impression above each eye, widest at the eye and tapering upward, the impression more or less alutaceous and dull, the surface elsewhere polished. Prothorax almost twice as wide as long, widest at base, sides straight or feebly sinuate and convergent to the middle, thence more arcuate and convergent to apex; hind angles somewhat acute; disk sparsely punctate, the punctures nearly evenly distributed and from one to two times their own diameters apart Elytra nearly two-fifths longer than wide and rather more than three times as long as the prothorax, evidently widened behind; costæ distinct, broader intervals all with confused punctures. Metasternum densely punctate at sides, nearly smooth at middle, more broadly so posteriorly as usual; abdomen alutaceous and dull, very sparsely punctate medially, closely so laterally. Tibial teeth nearly equidistant, the upper one evidently ante-median in position. Ungual tooth oblique, slightly post-median, its tip but little farther from the base than from the apex of the claw. Length 6–7.8 mm.; width 3.2–3.75 mm.

The type of this species is one of two examples collected in New Mexico (no locality named) by Prof. Snow. Other specimens from New Mexico and Arizona are in the Horn collection.

Abnormis is notable in being the only exception thus far known in the genus as regards the number of antennal joints, viz.: nine instead of ten. The fact is of no great moment, however, and considering the variation in this respect in certain nearby genera, *e. g. Lachnosterna* and *Dichelonycha*, the surprise is rather that there should be such uniformity in so large a genus. The species is rather a remarkable one in several other particulars, notably in the peculiar and variable supra-orbital impressions. In one example these impressions are double and occupy the greater part of the vertex and occiput, approaching so closely as to leave only a longitudinal median carina between them; in another example the anterior margin of the thorax is broadly impressed each side instead of the head. The acute hind angles of the thorax is a very unusual character and the form of the mentum and position of the ungual tooth are both exceptional in this part of the genus.

80. **D. harperi** Blanch.

Oblong, very little wider posteriorly, reddish-brown to blackish-brown, surface polished, with at most but faint traces of alutaceous sculpture on the elytra Mental declivity short and not strongly oblique, beginning at about the anterior third, summit feebly or moderately margined; mentum flat posteriorly with more or less numerous large shallow punctures. Clypeus usually broadly rounded from side to side, rarely subtruncate or subsinuate at middle; clypeal suture distinct, arcuate at middle; punctuation of head moderately dense, but a little variable Prothorax somewhat variable in form, usually nearly twice as wide as long, sides very broadly arcuate and a little convergent, the apex not much narrower than the base, punctuation coarse, dense at sides, less so medially, basal margin strongly impressed from side to side, the impressed line not or scarcely narrowed at middle. Elytra rather more than three times as long as the prothorax, coarsely quite densely punctate, less closely and coarsely at middle as usual. Upper tooth of front tibiæ much nearer the apex than the base; thighs rather slender; ungual tooth stout, obliquely truncate, nearly as long as the superior portion of the claw, its tip twice as far from the base as from the apex of the claw. Length 7–10 mm.; width 3.7–5.3 mm.

An abundant and widely dispersed species, occurring from New York to Florida and westward to Kansas and Texas. There is a specimen from Utah in the Nat'l Museum collection. The following localities are represented in the material before me: New York; New Jersey; Plummer's Island, Maryland; District of Columbia; Ft. Monroe, Virginia; Savannah (type locality) and Thomasville, Georgia; Florida; Huntsville, Alabama; Louisiana; Tennessee; Bee Spring, Kentucky; Cincinnati, Ohio; Indiana; northern and southern Illinois; Ann Arbor, Michigan; Dane County, Wisconsin; Iowa City, Iowa; St. Louis and St. Charles, Missouri; Arkansas; Argentine, Benedict and Onaga, Kansas; Nebraska; Texas; Utah.

Barring *texana*, which is closely allied, there is little danger of mistaking this species for any other. The rounded clypeus, strongly transverse prothorax with sides straighter and less convergent than usual, with the distinctly impressed basal margin, and the rather coarse and dense punctuation, give the species an exceptionally strong individuality. The differences from *texana* are given under that species. It is certainly possible and I am rather strongly inclined to believe that the unique type of *Alobus fulvus* Lec. is only a somewhat aberrant form of *D. harperi*. An examination of the type shows that LeConte was in error in saying that *Alobus* differed from other *Diplotaxis* in lacking the narrow membranous front margin of the thorax. The form of the terminal joint of the maxillary palpi is truly more elongate and cylindrical than in any *harperi* which I have examined, it is, however, a fact that this terminal joint is unusually slender in *harperi* and varies to such an extent that the difference between the extremes is greater than between one of them and *Alobus*. The color in *Alobus* is a paler yellow than in any *harperi* I have seen, but this is of no consequence and might happen in any species. It is, moreover, very remarkable, if the species is a good one, that in the more than fifty years since its description, a second specimen has not yet occurred, and that in a region so constantly worked over as the type locality—New York.

81. **D. texana** Lec.

This species resembles the preceding in many respects and notably in two of its important characters, viz.: the rotundate clypeus and impressed basal margin of the prothorax; the latter is, however, less marked and is narrowed or subobsolete at middle. *Texana* differs further from *harperi* in the longer mental declivity, this beginning at or but little in advance of the middle, in the somewhat less transverse prothorax, and the generally less coarse and dense punctuation of the upper surface. The elytra are finely alutaceous in *texana*, scarcely so in *harperi*.

Few specimens have been seen, all from Texas, and most of them collected by Belfrage. LeConte described his type from New Braunfels. In the original description, allusion is made to a second example believed to be identical but differing in having the clypeal margin "feebly hemihexagonal." This example I find, on examination, to be a specimen of my *thoracica* described in the present paper.

82. **D. languida** Lec

Elongate-oblong-oval, head and thorax rufotestaceous, elytra yellowish testaceous; upper surface without perceptible alutaceous sculpture. Mental declivity feebly oblique, not or scarcely margined and as a rule defined only by the row of setæ. Clypeal margin broadly rotundate, clypeal suture moderately impressed, head closely punctate. Prothorax three-fifths wider than long, widest at middle, sides feebly convergent or subparallel in basal half, broadly arcuate and convergent anteriorly; punctuation moderately coarse, the punctures separated by about their own diameters, the surface somewhat uneven. Elytra a little more than three times as long as the prothorax, sides broadly arcuate and parallel; costæ distinct, a little more convex, each with a row of five distant punctures; intercostal areas only moderately wide, the first with broadly confused punctuation, on the second more narrowly so, on the third only slightly irregular, except near the base. Body beneath moderately punctate, the punctures not conspicuously sparser and finer medially. Upper tooth of front tibiæ usually nearly twice as distant from the apex as from the base, sometimes a little nearer the middle tooth than the latter is from the apical one, though as a rule the teeth are nearly equidistant. Hind thighs rather stout. Ungual tooth subapical, nearly as long as the superior portion of the claw, its tip three times as distant from the base as from the apex of the claw. Length 5.8–6.8 mm.; width 2.85–3.5 mm.

This little species is apparently rather common in Florida. Specimens are known to me from St. Augustine, Enterprise, Crescent City, Tampa and Key Largo.

The small size, elongate form, pale color, rounded clypeus, somewhat uneven surface of prothorax, and subobsolete mental declivity are more than enough to identify this species—the size, color and habitat usually being amply sufficient.

83. **D. pumila** n. sp.

Oblong-ovate, only moderately shining, the prothorax minutely, the elytra more distinctly alutaceous. Mental declivity rather short, feebly oblique, scarcely margined. Clypeal margin rounded, subtruncate at middle. Head rather densely punctate, clypeal suture feebly impressed, especially at middle. Prothorax slightly more than one-half wider than long, sides strongly rounded at basal two-fifths, moderately convergent behind, more strongly convergent and nearly straight in front; front angles a little prominent and subacute; punctuation close, punctures nearly in contact at sides, separated by their own diameters or rather less, at middle. Elytra about two and two-fifths times as long as the prothorax, first costa evident, second less distinct; first intercostal space confusedly rather coarsely and closely punctate, second with the punctuation somewhat irregular, third with regular series of punctures except toward the base. Body beneath moderately punctate. Teeth of anterior tibiæ obtuse, the upper one sub-median in position. Ungual tooth subapical, its tip about twice as distant from the base as from the apex of the claw. Length 5.3 mm.; width 3 mm.

The type specimen in the writer's collection was taken by Prof. Snow in the Baboquivaria Mountains of southeast Arizona. There is a specimen in the Horn collection taken by Wickham in the Santa Rita Mountains, Arizona; and others from New Mexico without specific locality. This is the smallest species of the genus known to me.

84. **D. tarsalis** Schf.

Oblong-ovate, ferruginous to piceous, moderately shining, elytra very finely alutaceous, prothorax barely perceptibly so with a good triplet; punctuation fine and rather sparse. Mentum with coarse, shallow punctures, the declivity very short, feebly or scarcely margined posteriorly. Clypeal margin emarginato-truncate at middle, the angles well defined, sub-dentiform, with or without external sinuation. Head rather sparsely punctate, the clypeus more closely so; clypeal suture moderate. Prothorax three-fourths to four-fifths wider than long, widest at base, the sides nearly straight, and subparallel in basal half, subangularly rounded at middle, straight and convergent anteriorly; hind angles a little obtuse, their vertices narrowly rounded; surface broadly impressed within the basal angles, punctuation fine and sparse on the disk, a little closer at sides. Elytra nearly three times as long as the prothorax, slightly wider behind, finely punctured, costæ distinct but scarcely elevated, each with a somewhat irregular row of finer punctures; intercostæ all rather wide and confusedly punctured. Body beneath closely and a little more coarsely punctate at sides, sparsely and finely at middle. Upper tooth of front tibia strongly ante-median; hind thighs slender; tarsal joints clothed toward the apex of the under surface with dense fulvous hairs; ungual tooth subapical, obliquely truncate, its tip about twice as distant from the base as from the apex of the claw. Length 8.6–9.2 mm.; width 4.7–4.9 mm.

Arizona (Huachuca and Chiricahua Mountains), Schaeffer; Beyer and Hubbard and Schwarz collections.

This is the largest of our non-pubescent species with angulate clypeus, and may easily be recognized by its size, sparse and fine punctuation, mental and tarsal characters. There seems to be very little sexual difference in tarsal vestiture. In the male the terminal joint of the maxillary palpi is subcompressed, dilated, its inner margin strongly rounded; in the female elongate-oval or subcylindrical, with apex more or less obliquely truncate.

85. **D. polita** n. sp.

Oblong-ovate, rufotestaceous to piceous, surface polished and strongly shining, with scarcely a trace of alutaceous sculpture. Mental declivity quite strongly oblique, beginning at anterior third, distinctly margined behind. Clypeal margin rather strongly reflexed, emarginate at middle, the limiting angles quite variable, usually quite distinct or even sharply defined and with feeble external sinuation, but not infrequently distinctly rounded and without trace of external sinus. Head moderately closely punctate, more sparsely so toward the vertex, clypeus with the punctures closer but not crowded, suture finely impressed. Prothorax two-thirds wider than long, widest at or just behind the middle, sides strongly arcuate, front angles slightly prominent and sharply defined, hind angles obtuse but evident; disk moderately punctate, anterior and middle lateral foveæ distinct. Elytra three times as long as the prothorax, evidently wider behind, costæ moderate, subsutural interspace moderately wide and confusedly punctate, the other intercostal spaces a little narrower, irregularly punctate at least toward the base. Propygidium densely punctate, the submarginal groove feeble or subobsolete; pygidium coarsely densely punctured. Body beneath punctate about as usual. Upper tooth of front tibia submedian, hind thighs rather stout. Ungual tooth very broad, obliquely truncate, its tip about one and one half times as distant from the base as from the end of the claw Length 7–8 mm, width 3 6–4 2 mm

Lower California, San Jose del Cabo and Santa Rosa (Beyer)

The variation of the front of the clypeal margin is greater in this than in any other of our species, and specimens with the more broadly rounded clypeal angles would naturally be referred by students to a different section of the genus I have a suspicion that the difference is in some degree sexual, as is said to be true in certain Mexican species, but it is so difficult to distinguish the sexes that I am not sure of this The polished integuments with almost complete lack of alutaceous sculpture is a rare character and of itself sufficient to distinguish *polita* among those with which it could by any possibility be confused I have noticed in this species a very minute crenulation toward the base of the inner margin of the claws This structure is visible only with a strong lens in a good light It is present in all examples of the species which I have examined, but I have detected it elsewhere only in *chiricahuæ*

86 **D. errans** n sp

Oblong oval, rufotestaceous strongly shining, elytra scarcely detectably alutaceous, rather finely punctate Mental declivity very short, beginning in advance of the anterior fourth, distinctly margined, clypeus broadly reflexed, truncate at middle, the truncation just perceptibly emarginate, limiting angles distinct but not prominent, and with a well marked external sinus basal part of clypeus in the same plane with the front, the suture distinct and smooth at sides, nearly obliterated medially Head densely not coarsely punctate Prothorax not quite one half wider than long, widest at or very slightly in advance of the middle, sides strongly arcuate, base a little wider than the apex, all the angles obtuse, punctuation fine, punctures distant from one to two times their own diameters, closest near the front angles and in an area on each side of the middle of the disk Elytra two and two fifths times as long at the prothorax, scarcely wider behind costæ moderately distinct, first intercostal space moderately wide and confusedly punctate second narrower and with a single somewhat irregular series of punctures, third a little wider and more irregularly punctured Beneath rather finely and sparsely punctate, more closely at sides as usual Anterior tibiæ broad, strongly toothed, the upper tooth at about the basal third. Hind thighs very stout, hind tibiæ stout, a little shorter than the femora. Ungual tooth subapical, evidently shorter and not appreciably stouter than the superior portion of the claw, its tip about two and one-half times as distant from the base as from the apex of the claw. Length 9.1 mm.; width 4.6 mm.

Hab.—Texas.

The type and only representative of this very distinct species is in the Horn collection.

87 **D. truncatula** Lec

Oblong-subovate, dark piceous brown, more rarely red-brown, moderately shining, elytra finely, the prothorax minutely alutaceous. Mental declivity beginning at about the anterior one-third or two-fifths, posterior margin distinctly elevated. Clypeal margin truncate and feebly sinuate at middle, the angles well defined but obtuse, without or with but faint trace of sinuation Clypeal suture well impressed, often a little smoother, head elsewhere densely punctate. Prothorax very nearly two-thirds wider than long, widest at posterior one-third or two-fifths; sides broadly rounded and convergent in front, hind angles very obtuse, rounded, scarcely defined; punctuation rather fine, moderately close though somewhat variable. Elytra rather less than two and three-fourths times as long as the prothorax, slightly more than one-fourth longer than wide, feebly wider behind; costæ distinct, very remotely and finely punctate, all the intercostæ wide and confusedly moderately coarsely punctate Body beneath punctate about as usual, the punctures at sides moderately coarse but not very dense. Dorsal and ventral segments separated by a raised line. Upper tooth of front tibiæ slightly ante-median, more distant from the middle tooth than the latter is from the apical one. Hind thighs stout, very sparsely punctate at middle. Ungual tooth subapical, broad and almost squarely truncate, its tip about twice as distant from the base as from the end of the claw. Length 6–7.4 mm ; width 3.3–4 mm.

Hab.—Kansas, Texas and New Mexico.

The type, as well as almost all other specimens seen, are from Texas—for the most part without specific locality. Mr. Wickham has found it as far west as Alpine, and it has been taken at Brownsville by most of the collectors who have visited that place in recent years. The New Mexico specimen was taken at La Trementina and sent me by Prof. Cockerell, but it is not typical, the prothorax being widest at about the middle. There is considerable variation in the form and punctuation of the thorax, and I feel almost certain that *con-*

sors Lec. is only one of these varieties. It differs from the typical form only in the thorax, being slightly less transverse and less closely punctate. I regard *morula* Lec. also as a synonym of *truncatula;* the unique type differing in no way except by its somewhat narrower form.

88. **D. punctata** Lec.

Oblong-oval, dark-brown, shining, elytra very finely alutaceous, prothorax scarcely or barely visibly so. Mental declivity short, beginning at or about the anterior one-fourth, margined at summit. Clypeal margin hemihexagonal, the middle truncature sometimes feebly emarginate, angles distinct but obtuse and without or with but faint trace of external sinus. Head densely or closely punctate, clypeal suture distinct but not much impressed, a little smoother. Prothorax from three-fifths to two-thirds wider than long, strongly subangularly rounded at middle, the sides nearly straight before and behind, apex nearly equal in width to the base; front angles a little obtuse; hind angles more obtuse but fairly well defined; punctuation rather coarse and sparse and somewhat less sharply impressed than usual. Elytra about two and three-fourths times as long as the prothorax, suboval, sides broadly arcuate; costæ not distinct; punctuation rather coarse, confused on the broader intervals, the costæ with a row of fine distant punctures. Pygidium sparsely punctate. Body beneath rather coarsely and sparsely punctate, finer toward the middle. Upper tooth of front tibia strong and evidently post-median in position; hind thighs not stout; ungual tooth subapical, its tip nearly or quite three times as distant from the base as from the apex of the claw. Length 7–8 mm.; width 3.9–4.4 mm.

Hab.—Texas (San Antonio, New Braunfels, Marfa and Del Rio), and New Mexico (Roswell and Tecumcari).

LeConte's type was taken at "Frontera" on the Rio Grande. *Punctata* is more likely to be confused with *truncatula* than with any other species, but the latter differs quite constantly in its more finely and closely punctate thorax, the point of maximum width of the latter is more posterior, the pygidium is more closely punctate, the upper tooth of front tibia is in front rather than behind the middle and the hind thighs are stouter.

89. **D. chiricahuæ** n. sp.

Oblong-ovate, rufotestaceous or brown, moderately shining, elytra finely alutaceous, prothorax not evidently so. Mental declivity short, beginning at about anterior fourth, distinctly margined. Clypeal margin truncato-emarginate at middle, the limiting angles rather prominent and sharply defined but not dentiform, usually without or with but slight external sinuation Head closely punctate, clypeal suture nearly straight, moderately impressed, front flat or with a broad feeble concavity at middle just behind the suture Prothorax three-fifths wider than long, sides strongly rounded at or just behind the middle, nearly straight before and behind, the base a little wider than the apex, the apical margin more obviously angulate at middle than usual, hind angles obtuse but fairly well defined, punctuation rather fine and moderately close, the punctures separated by one-half to one and one-half their own diameters Elytra not quite three times as long as wide, a little wider behind, costæ not very distinct, the broader intervals with irregular punctuation which is, however, only narrowly so on the two outer ones Body beneath finely punctured, sparsely at middle, not very closely at sides Upper tooth of front tibiæ a little beyond the middle, ungual tooth subapical, obliquely truncate, not much wider than the upper part of the claw, its tip barely twice as far from the base as from the apex of the claw Length 6 5–7 8 mm , width 3 3–3 9 mm

This species has been taken in southeast Arizona at Nogales, and in the Santa Rita, Huachuca and Chiricahua Mountains by Hubbard and Schwarz, Snow, Wickham, Beyer and Schaeffer It has been taken in the Chiricahuas at an elevation of 5,000 feet during July of the present summer (1908), by my friend Mr Victor L Clemence of Pasadena, California, to whom I am indebted for many other good things from the same locality

90 **D. levicosta** n sp

Oblong oval, scarcely wider behind, elytra minutely alutaceous, the prothorax barely visibly so Mental declivity beginning at about the anterior two fifths, distinctly margined Clypeus rather strongly emarginate at middle, the limiting angles prominent but not acute, and with a distinct external sinus Head closely or densely moderately coarsely punctate, clypeal suture fine, obliterated at middle in one example Prothorax four-fifths wider than long, sides moderately rounded at basal two fifths, nearly straight anteriorly, the anterior angles a little produced, base angles obtuse, punctuation fine and rather sparse Elytra three times as long as the prothorax, costæ moderately defined, rather narrow, impunctate or virtually so except toward the apex, punctuation confused on the first two intercostal spaces, of which the first is nearly double the width of the second, irregular only toward the base in the third Body beneath very sparsely punctate medially, not very closely so laterally. Upper tooth of front tibia strong, slightly post-median. Ungual tooth post-median, evidently shorter than the upper portion of the claw, not very stout, obliquely truncate, its apex scarcely twice as distant from the base as from the point of the claw. Length 7–7 5 mm ; width 3.8–4 mm.

New Mexico (Albuquerque and Cloudcroft).

Two examples only of this species have been seen, that from the first named locality, collected by Wickham, the other by Viereck and now in the collection of the Philadelphia Academy of Sciences.

The almost complete absence of the serial punctures of the elytral costæ—except near the apex—is a very unusual character noticed elsewhere only in *atratula.*

91. **D. confusa** n. sp.

Oblong-ovate, rufotestaceous, moderately shining, the elytra distinctly finely alutaceous. Mental declivity fairly distinct, beginning a little in front of the middle, feebly or not at all margined behind. Clypeus emarginate at middle, angles sharply defined and prominent, with usually a slight external sinus; surface broadly convex at middle, feebly concave at sides, punctuation close but not crowded; suture moderately strongly impressed, arcuate at middle; front distinctly broadly impressed or concave at middle behind the clypeal suture; punctures separated by their own diameters or less, becoming a little sparser on the vertex, the occiput smooth at least in part. Prothorax about three-fifths wider than long, widest at or just behind the middle, sides strongly rounded, straight or faintly sinuate anteriorly; front angles obtuse, not prominent, hind angles more broadly obtuse; punctuation less close than on the head, the punctures separated by from one to two times their own diameters except near the anterior margin, where they are more densely placed; median lateral foveæ rather deep, the others faint or lacking. Elytra barely two and one-half times as long as the prothorax and about one-fourth longer than wide; costæ distinct, first interspace wide, confusedly punctate; second narrower, punctuation variable, confused throughout its length in the type, but only very slightly so or only toward the base in others; third with punctuation usually a little more irregular than in the second. Propygidial marginal groove nearly obsolete, pygidium moderately closely punctate. Body beneath rather finely and sparsely punctate. Upper tooth of front tibiæ at or a little in front of the middle; ungual tooth subapical, rather stout, obliquely truncate, its apex about twice as far from the base as from the point of the claw. Length 5.3–6.9 mm.; width 3.1–3.6 mm.

Lower California (El Taste, San Felipe, Santa Rosa, San Jose del Cabo) All specimens seen collected by Mr Beyer

The specimens here referred are quite variable in two or three particulars, but I think there is little doubt of their identity The width of the front between the eyes varies from two to three times that of the eye as viewed from the front This difference is of course fundamentally sexual in nature, but there is evidently some little variation in the same sex In the smallest specimens of the series before me, the punctuation is finer, and that of the second and third intercostal space is much more regular than in the typical form In these also the mental declivity is completely obsolete, being defined only by the transverse row of setæ *Confusa* is closely allied to *angularis*, with which LeConte appears to have confused it See remarks under *angularis*

92 **D. angularis** Lec

Oblong, elongate, very little wider behind, rufotestaceous, shining, the elytra minutely alutaceous Mentum flat, rather feebly declivous in anterior fourth, margin of declivity with row of setæ but scarcely at all elevated Clypeal margin angulate, emarginate at middle, sides sinuate near the angles making the latter quite prominent, clypeal suture straight, distinct though not excavated, front evenly broadly convex, punctuation of head and clypeus dense but not crowded, evenly distributed, distance between the eyes three and one third times the width of the latter, as seen from the front Prothorax not quite one half wider than long, widest a little behind the middle, sides strongly rounded at this point, nearly straight and with just a suspicion of a sinuation before the angles front angles a little obtuse, hind angles very obtuse, vertices somewhat rounded, punctuation nearly uniform in size like that of the head, but less dense, the punctures separated by from a little less to a little more than their own diameters, scarcely closer laterally Elytra very nearly three times as long as the prothorax, slightly more than one half longer than wide costæ rather well defined, first intercostal space three times the width of the sutural interval Second nearly two thirds the width of the first, punctures numerous and confused in all the broader intervals, costæ slightly more convex, each with a single line of distant fine punctures Body beneath rather finely not very closely punctured at the sides, metasternum nearly smooth at middle Teeth of anterior tibia equidistant, the upper one midway between base and apex Hind thighs rather slender, very sparsely finely punctate at middle

Ungual tooth moderate, sub-truncate, strongly post-median, its tip rather more than twice as far from the base as from the end of the claw. Length 7 mm.; width 3.4 mm.

Hab.—Copper mines of the Gila, Dr. Webb.

The above description is made from the type. With it is a second specimen which agrees perfectly except in being slightly smaller, also two other examples which are smaller and more ovate, and were evidently taken by LeConte to be females of the same species. While I cannot positively deny this, it seems to me very unlikely. The two specimens are apparently females, as indicated by the stouter hind thighs, but the eyes are relatively larger than in the male type, being separated on the front by a little less than three times their own width; the clypeus is not appreciably sinuate externally, the punctuation of the head is denser, the front is impressed at middle and the elytral punctuation is sparser and finer. These specimens seem very near my *confusa*, and I am disposed for the present to regard them as a variety of that species.

93. **D. ænea** Blanch.

Elongate-oblong, not or but slightly wider posteriorly; greenish-black; elytra, tibiæ, tarsi and front of clypeus brown or brownish testaceous, the elytra with viridi-æneous surface lustre; elytra densely rather coarsely punctate, prothorax more finely and less densely so, surface shining, the elytra feebly minutely alutaceous. Mentum declivous from anterior third, declivity margined behind. Clypeal margin sharply angulate, truncate or emarginate at middle, the angles prominent and with distinct external sinuation at least in the male; head densely punctate, clypeal suture finely or scarcely impressed, feeble or obsolete at middle. Prothorax varying from a little less than one-half to a little more than one-half wider than long, widest at or just behind the middle, sides moderately strongly arcuate, more convergent in front, hind angles very obtuse and not sharply defined, punctuation somewhat variable, usually moderately close, the punctures distant from a little less to a little more than their own diameters. Elytra two and two-thirds times as long as the prothorax, costæ fairly distinct but rather narrow, intercostal spaces all wide and coarsely densely punctate. Propygidial marginal groove obsolete. Body beneath punctate about as usual. Upper tooth of front tibia slightly ante-median in position. Ungual tooth rather slender, not or but little truncate, its apex about three times as distant from the base as from the end of the claw. Length 6–6.6 mm.; width 2.9–3.25 mm.

Texas. Three examples in the Nationl Museum collection. There are other specimens in the same collection from Mexico, where the species is apparently common and widely dispersed. This little species will be at once recognized by its color, which is quite different from anything else in our fauna.

94. **D. misella** n. sp.

Oblong-oval, rufotestaceous, moderately shining, upper surface rather coarsely punctate, the elytra minutely sub-alutaceous; mental declivity very short and feebly oblique, hind margin not elevated. Clypeus hemihexagonal, broadly roundly emarginate between the sharply defined angles, feebly or scarcely sinuate laterally. Head closely strongly punctate, clypeal suture not impressed, front broadly evenly convex. Prothorax slightly more than two-fifths wider than long, widest just behind the middle, sides strongly arcuate; front angles obtuse, well defined but not at all advanced; hind angles broadly rounded and indistinct; surface moderately closely rather coarsely punctate. Elytra two and one-half times as long as the prothorax, almost one-half longer than wide; costæ not very distinct, very remotely finely punctate; first intercostal space moderate in width, and confusedly punctured; second and third with nearly regular series of punctures. Pygidium and propygidium not densely punctate, the latter without apical groove. Body beneath rather sparsely not coarsely punctate. Upper tooth of front tibia sub-median; hind thighs impunctate medially; ungual tooth subapical, its tip about twice as far from the base as from the apex of the claw. Length 5.5 mm.; width 2.7 mm.

Cochise County, Arizona. One example sent by Prof. Snow. Next to *pumila* this is the smallest species in our fauna. The two may be readily distinguished by the clypeal differences.

95. **D. tenuis** Lec.

Elongate subparallel, rufotestaceous, elytra minutely alutaceous. Mental declivity ill-defined, not margined behind. Clypeus arcuately emarginate at middle, the angles moderately well defined, without external sinuation. Head densely punctate, clypeal suture finely impressed, rather strongly posteriorly flexed at middle. Prothorax three-fifths wider than long, widest just behind the middle, sides strongly arcuate, nearly straight anteriorly; front angles obtuse, not in the least prominent, hind angles broadly rounded and ill-defined; punctuation rather sparse. Elytra very nearly three times as long as the prothorax, one-half longer than wide, scarcely wider posteriorly, costæ not very distinct, first intercostal space only with the punctuation distinctly confused Pygidium and propygidium sparsely punctured, the latter without trace of apical groove Body beneath sparsely finely punctate Upper tooth of front tibia a little behind the middle, hind thighs subimpunctate medially, ungual tooth slender, subapical but evidently shorter than the upper part of the claw, more or less obliquely truncate at apex, its tip nearly three times as far from the base as from the apex of the claw Length 6 25 mm , width 2 7 mm

The type of this species was found dead at Vallecitas, in the desert region of southeastern California It lacks the head, therefore could not be properly described by LeConte A specimen in my own collection from Hagua Hala on the Colorado River in western Arizona agrees very well with the type, is assumed to be identical, and the description of the head is drawn from the specimen In the type the hind coxal plates are almost smooth and the abdomen is sparsely punctate, in my Arizona specimen the coxal plates are sparsely punctured and the abdomen almost smooth except at the extreme sides LeConte says that the elytral costæ are impunctate I did not verify this in my examination of the type, or at least made no note of it In the Arizona example the costæ have each a series of very fine distant punctures

BIBLIOGRAPHY AND SYNONYMY

DIPLOTAXIS Kirby

1 D SORDIDA Say (*Melolontha*), Jour Acad Nat Sci , Phila , v, p 197 (1825), Ent of N Am (Ed Lec), ii, p 299, Lec , Jour Acad Nat Sci , 2d series, iii, p 266 (1856)
D castanea Burm , Lamell , ii, 2d, p 262 (1855)
2 D RUGOSIOIDES Schf , Jour N Y Ent Soc , xv, p 61 (1907)
3 D MIMOSÆ n sp
4 D POPINO Csy , Contrib to Descrip and Syst Col of N Am Pt ii, p 179 (1885), Biologia Cent Am Coleop , vol ii, pt ii, p 164 (1888)
5 D CRIBRULOSA Lec , loc cit , p 270
6 D ARIZONICA Schf , loc cit , p 63
7 D BOWDITCHI n sp
8 D VILLOSA n sp
9 D PUBERULA Lec , Smith, Miscel Coll , vi, p 80 (1863)
10 D BREVISETOSA Linell, Proc U S Nat Mus , xix, p 400

11 D MURICATA Schf , loc cit , p 62
12 D HISPIDA n sp
13 D SPARSESETOSA Schf , loc cit , p 63
14 D KNAUSII Schf , loc cit , p 64
15 D FISSILABRIS n sp
16 D SCHAEFFERI n sp
17 D MENTALIS n sp
18 D CONFORMIS n sp
19 D RESIDUA n sp
20 D TENEBROSA n sp
21 D COSTULATA n sp
22 D BREVICOLLIS Lec , loc cit , p 267
Ancylonycha nigropicea Walk , Nat in Brit Col , ii, p 322
23 D SEMIFOVEATA n sp
24 D PARVICOLLIS n sp
25 D LEVICOXA n sp
26 D HAYDENII Lec , loc cit , p 272
D innoxia Lec , loc cit , p 273
27 D DENTELLA n sp
28 D INSIGNIS Lec , Proc Acad Nat Sci Phila , 1861, p 346
29 D BELFRAGEI n sp
VAR SINUATA n var
30 D ATLANTIS n sp
31 D SIERRÆ n sp
32 D PARALLELA n sp
33 D OBSCURA Lec , Smith, Cont Knowl , 1859, xi, p 9 (Col of Kans and E N Mex)
Ancylonycha consequens Walk , Nat in Brit Col , ii, p 322
VAR PROMINENS n var
VAR COMPACTA n var
34 D TRISTIS Kirby, Faun Am Bor , 1830, Lec , Jour Acad Nat. Sci Phila , 2d series, iii, p 267
D corpulenta Burm , loc cit , p 263
35 D LIBERTA Germ (*Melolontha*), Ins Nov , 123, Burm , loc cit , p 261, Lec , loc cit p 267
Melolontha mœsta Say , Jour Acad Nat Sci Phila , v, p 197
D georgiæ Blanch , Cat Col Mus Paris, 171 (1850)
36 D SUBCOSTATA Blanch , Cat Col Mus Paris, 1850, Lec , loc cit , p 267
D castanea Burm , loc cit , p 262
37 D RUFA Linell , Proc Nat Mus , xviii, p 725 (1895)
38 D FRONTALIS Lec , loc cit , p 268
39 D EXCAVATA Lec , loc cit , p 267
40 D DENSICOLLIS n sp

41. D. SUBANGULATA Lec., loc. cit., p. 271.
    VAR CALIFORNICA Schf., loc. cit., p. 66.
42. D. ATRATULA Lec., loc. cit., p. 270.
43. D. CONNATA Schf., Brooklyn Inst. Mus. Sci. Bull., i, 7, p. 158.
44. D. MACRONYCHA n. sp.
45. D. PACATA Lec., loc. cit., p. 272.
46. D. FIMBRIATA n. sp.
47. D. BREVIDENS Lec., loc. cit., p. 272.
48. D. FOSSIPALPA n. sp.
49. D. ILLUSTRIS n. sp.
50. D. BEYERI Schf., Jour. N. Y. Ent. Soc., xv, p. 66.
51. D. SULCATULA n. sp.
52. D. MŒRENS Lec., loc. cit., p. 268.
53. D. PUNCTIPENNIS Lec., loc. cit., p. 268.
54. D. CORVINA Lec., loc. cit., p. 272.
55. D. CARBONATA Lec., loc. cit., p. 270.
56. D. RUFIOLA n. sp.
57. D. ACERBA n, sp.
58. D. IGENUA n. sp.
59. D. PLANIDENS n. sp.
60. D. AMBIGUA n. sp.
61. D. CEPHALOTES n. sp.
62. D. MARGINICOLLIS n. sp.
63. D. PUBIPES Schf., loc. cit., p. 65.
64. D. TREMENTINA n. sp.
65. D. PUNCTULATA Horn, Col. Baja Cal., Bull. Cal. Acad. Sci., 2d Ser. iv, p. 397.
66. D. PENINSULARIS n. sp.
67. D. ANXIUS Lec. (*Orsonyx*), loc. cit., p. 266.
68. D. ANTHRACINA n. sp.
69. D. MAURA n. sp.
70. D. PINGUESCENS n. sp.
71. D FRONDICOLA Say (*Melolontha*), Jour. Acad. Nat. Sci. Phila., v, p. 198; Ent. (Ed. Lec.), p. 299; Lec. loc. cit., p. 269.
    D. testacea Burm., loc. cit., p. 263.
72. D. BASALIS n. sp.
73. D. LENGII n. sp.
74. D. THORACICA n. sp.
75. D. ARCUATA n. sp.
76. D. DUBIA Lec., loc. cit., p. 269.
77. D. CURVATICEPS n. sp.
78. D. BIDENTATA Lec., loc. cit., p. 271.
79. D. ABNORMIS n. sp.
80. D. HARPERI Blanch. Cat. Col. Mus. Paris, 171; Burm., loc. cit., p. 263; Lec., loc. cit., p. 269.

81. D. TEXANA Lec., loc. cit., p. 268.
82. D. LANGUIDA Lec., Proc. Am. Phil. Soc., xvii, p. 403 (1878).
83. D. PUMILA n. sp.
84. D. TARSALIS Schf., loc cit., p. 64.
85. D. POLITA n. sp.
86. D. ERRANS n. sp.
87. D. TRUNCATULA Lec., loc. cit., p. 269.
    D. consors Lec., loc. cit., p. 269.
    D. morula Lec., loc. cit., p. 270.
88. D. PUNCTATA Lec., loc. cit., p. 270.
    D. levicula Csy., Cont. to Descrip. & Syst. Col. N. Am., pt. ii, p. 178.
89. D. CHIRICAHUÆ n. sp.
90. D. LEVICOSTA n. sp.
91. D. CONFUSA n. sp.
92. D. ANGULARIS Lec., loc. cit., p. 268.
93. D ÆNEA Blanch., loc. cit., 172; Burm., Handb., iv, 2, 536; Biol. Cent. Am. Coleop., vol. ii, pt. 2, p. 158; also Suppl. p. 397;
    D. pauperata Burm., Handb. iv, 2, p. 16.
    D. simplex Blanch., ♀, loc cit., 172.
94. D. MISELLA n. sp.
95. D. TENUIS Lec., loc. cit , p. 271.

UNRECOGNIZED SPECIES.

D. punctatorugosa Blanch., loc. cit , 171; Burm. Handb., iv, 2, p. 263.

D. frondicola Blanch. (not Say), loc. cit. This species has been regarded as a variety of *excavata* and perhaps correctly so.

EXPLANATION OF PLATE.

The figures in all cases show the form of the clypeal margin and the tarsal claws. The former have been drawn with the aid of the camera lucida to virtually the same scale, and therefore nearly represent the relative size of the head in the different species This is not true of the claws.

No references to the plate have been made in the body of the paper, but as the names of the species are arranged alphabetically in the following description, it is easy to ascertain at once whether any given species is represented.

D. abnormis.—Clypeus as in 44; claw 47.

D. acerba.—Clypeus as in 32; claw 34.

D. ænea.—Clypeus not very different from 3; claw nearly as in 35.

D. ambigua.—Clypeus 35, the median sinuation sometimes more and sometimes less marked than in the figure; claw 34.

D anthracina —Clypeus nearly as in *tristis*
D anxius —Clypeus and claw 39
D arcuata —Clypeus as in 44, claw 45
D arizonica —Clypeus and claw 3
D atlantis —Clypeus nearly as in 13, claw 16
D basalis —Claw nearly as in 38
D belfragei —Clypeus nearly as in 13, the var *sinuata* having the median sinuation a little deeper, claw 15
D beyeri —Clypeus and claw 27
D bidentata —Clypeus as in 44
D brevicollis —Clypeus and claw 13, the median sinuation of clypeus may be greater or less than in the figure, which is about that in the average specimen
D brevidens —Clypeus and claw 26
D brevisetosa —Clypeus and claw 6
D carbonata —Clypeus and claw 32
D cephalotes —Clypeus nearly as in 33
D chiricahuæ —Clypeus nearly as in 48
D conformis —Claw as in 14
D confusa —Nearly as in 54
D corvina —Clypeus 22, claw 31
D costulata —Clypeus 13, claw 11
D curvaticeps —Clypeus 44 claw 45
D densicollis —Clypeus and claw as in 22
D dentella —Clypeus nearly as in 13
D dubia —Clypeus 44, claw nearly as in 38
D errans —Clypeus and claw 50
D excavata —Clypeus and claw 22
D fimbriata —Clypeus slightly more obtusely rounded than in 25, claw as in 25
D fossipalpa —Clypeus and claw nearly as in 26
D frondicola —Clypeus 42, claw nearly as in 38
D frontalis —Clypeus and claw 22
D harperi —Clypeus 44, claw 49
D haydenii —Clypeus nearly as in 13, claw nearly 14
D hispida —Clypeus and claw 8
D illustris —Clypeus a little less sinuate than 26, claw 28
D ingenua —Clypeus a trifle more broadly sinuate than in 32, claw as in 34
D insignis —Clypeus nearly as in 13, claw 14
D languida —Clypeus 44
D lengi —Claw as in 43
D levicosta —Clypeus and claw 53
D levicoxa —Clypeus usually slightly less sinuate than 13, claw 14
D liberta —Clypeus 13, claw 21

D *macronycha* —Clypeus and claw 24

D *marginicollis* —Clypeus nearly as in 35

D *maura* —Clypeus near the eye 40, claw nearly 38

D *mentalis* —Clypeus and claw 12

D *mimosæ* —Clypeus and claw 1

D *misella* —Clypeus and claw 54

D *mœrens* —Clypeus nearly as in 13, claw 27

D *muricata* —Clypeus and claw 7

D *obscura* —Clypeus nearly 13, claw 18

D *palata* —Clypeus and claw 25

D *parallela* —Clypeus a trifle less sinuate than in 13, claw nearly as in 17

D *parvicollis* —Clypeus slightly less sinuate than in 13, claw as in 13

D *peninsularis* —Clypeus nearly 39, claw as in ♀ 37

D *pinguescens* —Clypeus at side 41 claw 38

D *polita* —Clypeus and claw 48

D *popino* —Clypeus 2, claw 2

D *puberula* —Clypeus 5, claw 4

D *pubipes* —Clypeus nearly 35, claw 36

D *pumila* —Clypeus 44

D *punctata* —Clypeus and claw 52

D *punctipennis* —Clypeus much like 27, but slightly less deeply sinuate, claw 30

D *rufa* —Clypeus 20, claw nearly 19

D *rufiola* —Clypeus 32, claw 33

D *schaefferi* —Clypeus and claw 9

D *semifoveata* —Clypeus and claw about as in 13

D *sierræ* —Clypeus nearly 13, claw 17

D *subangulata* v *californica* —Clypeus and claw 23

D *subcostata* —Clypeus and claw 19

D *sulcatula* —Clypeus similar to 26, but a little more advanced, claw 29

D *tarsalis* —Clypeus 46, claw nearly 49

D *tenebrosa* —Clypeus and claw 10

D *tenuis* —Claw 55

D *texana* —Clypeus 44

D *thoracica* —Clypeus and claw 43

D *trementina* —Claw nearly 36, clypeus 37

D *tristis* —Clypeal sinuation slightly more pronounced than in 13; claw 21

D *truncatula* —Clypeus and claw 51

D *villosa* —Clypeus and claw 4

New Hymenoptera from Western United States.*

BY S. A. ROHWER, BOULDER, COLO.

Passalœcus fasciatus n. sp.

Female.—Length about 10 mm.; length of anterior wing about 6 mm. Head rather transverse, about the same shape as *Passalœcus mandibularis* Cresson. Antennæ twelve-jointed, moderately stout; fourth joint longer than third. Prothorax rather than usual, sharply truncate anteriorly; propleuræ longitudinally striate above. The difference in height between the dorsulum and prothorax is not as great as in *P. mandibularis*, dorsulum apparently impunctate; mesopleuræ apparently finely transversely striated. Metanotum renticulated (this could not be seen very clearly with a hand lens, but the compound microscope showed it plainly). The metapleuræ and posterior face strongly, transversely striate-rugose. Legs perhaps a little stouter than in the modern members of the genus; posterior tibiæ without spines. Venation very much the same as in *P. mandibularis;* stigma large, rounded on the lower margin; the shape and position of the basal nervure is just the same as in *P. mandibularis;* radial cell of the usual shape, wider at the base, in front of stigma tapering to an acute apex; second tran cu. (the first is wanting) sharply bent in the middle, and with a spurious nervure running in the direction of the third tran. cu Abdomen long and flattened, much the same shape as the abdomen of *Crabo* (Xestocrabo) *trifasciatus* Say; the abdomen of *Passalœcus* as a rule is shorter and more cylindrical The head and thorax black; the abdomen black or dark brown, with a narrow band on the second and a broader one on segments 3–5 pale, probably yellow. Wings hyaline, venation brown.

The following measurements are in micromillemeters:—

Length of the third antennal joint	204.
Length of the fourth antennal joint	306.
Length of the 2 tran. cu above the spurious nervure	204.
Length of the basal nervure between the cu. and costa	340.
First recur. basal of the 2 tran. cu	850.
Second recur. basal of the 3 tran. cu	221.
Tran med. to besal	51.
Length of stigma	765.
Width of stigma at origin of the cubitus	170.
Length of the third tran. cu.	595.

Habitat.—Station 13B of the Tertiary Shales of Florissant, Colorado (S. A. Rohwer), 1908. Type in the University of Colorado.

---

* I wish to acknowledge my indebtedness to Prof T. D. A. Cockerell for going over my manuscript.

This species seems to be very close to *Passalœcus scudderi* Ckll (Bull Mus Comp Zoo, p 46, vol L, No 2, 1906), being easily known by its larger size, and having a more transverse head The general habitus of *P fasciatus* is very similar to *P mandibularis* Cresson, a recent species found at Florissant.

The presence of the spurious nervure on the second transverse cubitus led me at first to think that there was a petiolate second cubital cell, and I could not place the specimen in any genus On examining a specimen of *Passalœcus mandibularis*, there was no doubt in my mind that the fossil was a *Passalœcus* The shape of the radial, and the basal nervures are exactly as in this genus

It seems strange that the only two fossil *Pemphredonids* described should have the abdomen banded with pale bands I have gone through a number of descriptions of *Pemphredonids* from all parts of the world, but in none of them was the abdomen banded with pale bands It may be possible that if we had a recent specimen this insect would belong to a different genus.

Passalœcus mandibularis Cresson

I have two females of this species from Florissant, Colorado, collected by Prof T D A Cockerell, one June 30, 1907, the other July 21, 1906 "on stump of *Pinus scopulorum* probably nesting" The intermediate tibiæ of one of these is black A male from North Boulder Creek, Boulder Co, Colorado, August 21, 1908, on foliage of *Heracleum lanatum*, Canadian Life Zone (S A Rohwer)

Passalœcus relativus Fox

Female—Length 5 5 mm Head finely closely punctured, more finely so on the front Inner eye margins narrowing but little towards the clypeus Clypeus in the middle produced into a low, broad, truncate process the angles of which are slightly dentate Frontal impressed line distinct, but not strong, ocelli placed in shallow pits, the distance between the posterior pair slightly greater than the distance between one of them and the nearest eye margin Dorsulum finely closely punctured, the furrows distinct but not strong scutellum punctured like the dorsulum, not impressed, mesopleuræ finely punctured, the suture strongly foveolate Metapleuræ reticulate, at the sides not so coarsely so, the base of the metapleuræ finely, transversely striated Abdomen smooth, highly polished Black, head and thorax opaque, mandibles except the teeth which are reddish, scape in front and tubercles *yellow*, four anterior trochanters more or less, four anterior legs below the apices of the femora (the tibiæ darkened medially), base of the posterior tibiæ and their tarsi *reddish* or *reddish-yellow* Wings clear hyaline, iridescent, venation dark brown Pectus, face and clypeus with rather sparse silvery pubescence

Habitat—Two females, Boulder, Colorado, one on the Campus of the University of Colorado, June 9, 1908 (T D A Cockerell), the other June 10, 1908 (S A Rohwer), one female, Florissant, Colorado, June 14, 1908 (S A Rohwer), "on sand"

I have not seen the male of this species, but from the description of it this seems to be the female This species is close to *mandibularis* Cress , but the clypeus is different, the labrum is piceous or black, the apical antennal joint is not longer than the preceeding one, and the markings are yellow It is also related to *æqualis* Viereck, but it is larger, the distance between the lateral ocelli is greater than the distance between one of them and the nearest eye margin, the antennæ are black, and the third antennal joint is longer than the fourth

Ammoplanus eriogoni n sp

Male—Length 3 mm Head opaque, appearing punctured but under the compound microscope is finely tessellate Inner eye margins distinctly converging toward the clypeus Clypeus in the middle very slightly emarginate in the basal middle there is a rounded prominence Frontal suture hardly visible Ocelli prominent in a low triangle, the distance between the lateral ones about the same as the distance to the nearest eye margin Third and fourth antennal joints equal, the apical joint distinctly longer than the preceeding all the joints rounded out beneath, moniliform Dorsulum and scutellum opaque, seen under the compound microscope tessellate, with faint indications of furrows on the dorsulum, scutellum not impressed The suture between the dorsulum and the scutellum under the compound microscope foveolate Mesopleuræ opaque, the suture deep Metanotum rather coarsely tesselate, with small punctures between (the punctures cannot be seen without the compound microscope), in the middle the tessellation is plainer, metapleuræ finely tessellated Venation like *A columbianus* Kohl (Ann K K Nat Mus Wien, 1890, p 61) except that the basal nervure bounding the first discoidal cell is bent inwardly. Abdomen shining, elongate, attenuated toward the apex; the basal margin of dorsal segments 2–5 constricted. Black: mandibles except the teeth, which are reddish, cream-colored; anterior legs below the apices of the femora, four posterior knees somewhat, four posterior tarsi (the tarsi are more or less infuscated) reddish-yellow. Pectus, face below the antennæ and clypeus with silvery pubescence. Wings clear hyaline, iridescent; venation black.

Habitat.—Florissant, Colorado, July 19, 1906, at flowers of *Eriogonum umbellatum* (T. D. A. Cockerell).

This may be the male of *columbanius* Kohl, described from British Columbia, but the legs are darker, the frontal line is not "distinct," the pleuræ are not more shining than the dorsulum. It is also related to *A. constrictus* (Prov.) described as an *Anacrabo* from Los Angeles, California, but the abdomen could not be called "shortly petiolate" nor "oval," and the legs are of different color.

Stigmus inordinatus Fox

I have seen specimens of this species from the following localities. Three males, Boulder, Colorado, August 24, 1908, and July 28, 1908, on foliage of *Rulac negundo* (S. A. Rohwer); female, Campus of the University of Colorado, August 24, 1908 (T. D. A. Cockerell); a male collected by Prof. C. P. Gillette, in Larimer Co., Colorado; a female, Beulah, New Mexico, caught by Mrs. Cockerell, who saw it catch aphids. The Beulah specimen has the venation paler than the Boulder specimens.

Stigmus inordinatus universitatis n. subsp.

This subspecies differs from *inordinatus* in having the four anterior legs orange-red, and finer sculpture of the dorsulum. The dorsulum and head are polished not visibly punctured; the fossulets of the metathorax are larger. The scape is somewhat curved.

Habitat.—Campus of the University of Colorado, Boulder, Colorado, August 14, 18, 24, 1908 (Prof. T. D. A. Cockerell); and Lawrence, Douglas Co., Kansas, July (E. S. Tucker).

Stigmus lucidus n. sp.

Male.—Length 3.5 mm. Anterior margin of the clypeus produced into an entire obtuse point. Face below the length of the scape dullish apparently finely granular; the rest of the head is shining, impunctate.

Frontal line faint Ocelli in an equilateral triangle or a little less than one, the distance between the lateral ocelli decidedly less than the distance between one of them and the nearest eye margin Antennæ slender, weak, the third joint a little longer than the fourth, the apical joint longer than the proceeding Pronotum strongly carinated, the angles sharp Dorsulum dull, impressed anteriorly, the sculpture very fine, the suture between the dorsulum and the scutellum strong Scutellum, convex, shining, impunctate, not impressed Mesopleuræ finely granular, metathorax rugose, metanotum not channeled Legs slender, not spined Abdomen shining, impunctate, the petiole about as long as the hind femora, sulcate above Color black, most of the insect shining, nude except the facial pubescence, mandibles, antennæ, tegulæ, legs (the posterior femora are a little brownish), yellow but not bright yellow, tubercles cream-colored Wings hyaline, iridescent venation dark brown

Habitat —Lawrence, Kansas, July (E S Tucker)

Stigmus lucidus is related to *inordinatus* Fox, but the clypeus is different and the legs are paler, including the posterior femora

Pemphredon cockerelli n sp

Female —Length 9 mm Anterior margin of the clypeus tridentate, the inner tooth small and sharp, the outer teeth broader and larger, the surface of the clypeus with distinct rather close punctures Mandibles with three large, sharp teeth Front with close, medium size punctures vertex and cheeks with a few large punctures, shining Head seen from above slightly narrowing posteriorly subquadrate Ocelli in a curved line Third antennal joint about a third longer than the fourth in the middle the joints are somewhat moniliform but still cylindrical Mesonotum with close distinct punctures on the anterior margin the rest shining with a few large punctures the anterior part is parted by a rather shallow furrow Scutellum with some large punctures The inclosure of the metanotum with more or less irregular, longitudinal striæ, a distinct central furrow the usual shining lunate area is, but is finely longitudinally striated which makes it dullish Posterior face and the metapleuræ rugosely punctured the posterior face with a fairly distinct furrow Second rec n received in the base of the second cub second cub quadrate All the tibiæ without spines Petiole of the abdomen about the same length as the hind basi tarsus Abdomen shining impunctate the dorsal area of the third and fourth segment with many raised blisters The apical segment with a short, parallel sided projection which is longitudinally channeled Entirely black, with rather long gray hair Wings hyaline, slightly dusky venation black

Habitat—Florissant, Colorado, June, 1906 Dedicated to Prof T D A Cockerell, who collected it

This species is related to *nearcticus* Kohl, but may be known at once by the absence of spines on the tibiæ It belongs to the genus *Pemphredon* in the restricted sense

Diodontus argentinæ n sp

Male—Length 4 mm Clypeus with a deep sub-semicircular notch in the middle, and two lateral teeth Front with close, rather small, in some places confluent punctures, the vertex with small, distinct, well scattered punctures, cheeks rather strongly striato punctate Ocelli in a equilateral triangle, not placed in pits, the distance the lateral ocelli not nearly as great as the distance between one of them and the nearest eye margin Third and fourth antennal joints equal, joints 9–12 slightly spined beneath Dorsulum shining, with a few very small punctures, mesopleuræ striate above, below in the middle rugose Scutellum posteriorly striated, at the sides there is a large circular depression Metanotum rugose, posterior face with small indistinct fovea and a few striæ, the lateral ridges strong, metapleuræ with some transverse striæ Legs rather robust, posterior tibiæ not strongly spined Venation somewhat different than the typical *Diodontus* as figured by Kohl (Die Gattungen der Sphegiden), but most of the American species are similar to *argentinæ* The tran med and ba are interstitial, the cub of the hind wings is interstitial with the tran med There is an indication of a first tran cu Abdomen shining, impunctate, not constricted between the segments dorsally Color black, tibiæ and tarsi beneath yellowish brown palpi grayish yellow Wings dusky hyaline, iridescent, venation black Besides the usual pubescence of the face the insect is nude

Habitat—Cripple Creek, Colorado, July 29, 1906 (S A Rohwer), at flowers of *Argentina anserina* Cripple Creek is in the Canadian Zone, and has an altitude of about 10,000 feet

This species is not close to any described species The black mandibles, dark legs, striato-punctate cheeks should make it easy to separate it from the other species

Diodontus vallicolæ n sp

Male—Length about 4 mm Anterior margin of the clypeus notched in the center and with two lateral teeth Seen from above the head is depressed between the eyes Between the antennæ is a faint indication of a carina Front rather coarsely punctured, the punctures elongate, and at some angles appearing striato-granular, vertex more sparsely punctured, cheeks below striato-punctate, but not so strongly so as in *argentinæ* Antennæ rather elongate, somewhat moniliform apically, joints 10–12 slightly spined apically beneath, the apical joint the longest, joints three and four equal Dorsulum shining, with distinct, separate punctures, mesopleuræ striated under the tegulæ, the rest rugose with a tendency to striation Scutellum sculptured like the dorsulum, at the sides depressed but not so strongly so as in *argentinæ* Metanotum punctato-rugose, in the middle with a shallow indistinct channel metapleuræ striated, posterior face rugose, at the top with a distinct V-shaped fovea, not strongly defined laterally Legs not quite so robust as in *argentinæ* Venation like *argentinæ* except there is no indication of a cross first tran cu Abdomen shining, impunctate, not constricted between the segments Color black anterior tibiæ beneath and at the base, their tarsi, base and apex of the four posterior tibiæ, and their tarsi somewhat, brownish yellow Tegulæ in front and the palpi yellowish Wings clear hyaline, iridescent, venation black With the usual facial pubescence

Habitat—Florissant, Colorado, alt 8,100 feet (S A Rohwer), June 10 and 11, 1907, on foliage of *Ribes vallicola*

Diodontus vallicolæ is close to *argintinæ*, but is smaller, the metathorax is not margined laterally by strong carinæ, the ocelli are in less than an equilateral triangle, the front is more coarsely sculptured and the front is depressed, etc

Diodontus vallicolæ salicis n subsp

Male—Length about 4 mm Differs from the typical *vallicolæ* in not having the front so strongly depressed, the cheeks hardly striated, the dorsulum more densely punctured scutellum not so depressed at the sides, metanotum not channeled above, and the legs more yellow

Habitat—Boulder, Colorado, April 11, 1908 (S A Rohwer), on foliage of *Salix exigua*

Diodontus cockerelli n sp

Male—Length 2 75 mm Slender Labrum broadly emarginate, lobes small, triangular Clypeus apparently without teeth or an emargination Front shining, very finely closely punctured, vertex and cheeks with some large punctures frontal line distinct, but not strong Head not depressed between the eyes seen from above it is straight in front Ocelli in less than an equilateral triangle, the distance between the lateral ocelli about the same as the distance from one of them and the nearest eye margin Antennæ long, slender, not serrated Dorsulum impressed in the middle the punctures small, distinct, close anteriorly, but separated posteriorly, mesopleuræ rugosely punctured Scutellum punctured, at the sides depressed Metanotum granular in the middle, smooth laterally, not ridged or channeled, metapleuræ granular posterior face with a fovea above, not bounded by carinæ at the sides. Legs rather slender; venation as *argentinæ* and allied species. Abdomen shining, punctured with strong, distinct, separated punctures; somewhat constricted between the first and second segments. Color black; apices of the mandibles and the palpi brownish; four anterior legs below the femore, base of the hind tibiæ and hind basi-tarsus brownish-orange. Wings hyaline, iridescent; venation black. Except the face below the antennæ the insect is hardly pubescent.

Habitat.—Florissant, Colorado, June 19, 1908 (Prof. T. D. A. Cockerell). I take great pleasure in dedicating this distinct little species to Prof. Cockerell.

A very distinct species, easily recognized by the large punctures of the abdomen and the small size.

Didontus fraternus n. sp.

Male.—Length 3.5 mm. Clypeus rather deeply semicircularly emarginate, the angles sharp. Front closely, finely punctured; vertex, occiput and cheeks with rather sparse, distinct punctures; frontal impressed line present but not strong. Ocelli in a low triangle; the distance between the two lateral ocelli a little greater than the distance between one of them and the nearest eye margin Antennæ robust; the third joint shorter and smaller than the fourth, apical joint longer than the preceeding one, but not nearly as long as 11 and 12. Dorsulum shining, sparsely punctured, two parallel grooves in the middle. Mesopleuræ granular, somewhat striated. Scutellum convex, the suture between it and the dorsulum, and it and the postscutellum deep; the scutellum shining, impressed in the middle, not depressed at the sides Metanotum rugose with an indication of a channel; metapleuræ with strong irregular striæ; posterior face not margined laterally by carinæ; with a triangular fovea in the middle above. Legs not very robust; venation as in *argentinæ* Abdomen shining, impunctate, not constricted between the segments Color black; mandibles except the piceous apices bright lemon yellow; tegulæ and tubercles pallid; flagellum beneath orange-color; legs below the knees reddish-yellow. Face with silvery pile. Wings slightly dusky hyaline, iridescent; venation black.

Habitat.—Florissant, Colo., June 23, 1907 (S. A. Rohwer).

This species is related to *crassicornus* Vier. in the robust antennæ, but differs in the color of the legs, and the antennæ are not serrate.

Diodontus neomexicanus n sp.

Male—Length 2.5 mm. Labrum shallowly emarginate. Clypeus with a truncate tooth. Front with distinct separate punctures; vertex, occiput and cheeks more sparsely punctured. Front seen from above straight, not emarginate, a small distinct tubercle the antennæ, frontal impressed line faint Ocelli in a low triangle, the distance between the lateral ocelli about the same as the distance between one of them and the nearest eye margin Antennæ serrate beneath from joints 9 to 12, apical joint almost as long as joints 11 and 12 Dorsulum closely punctured at the sides and anteriorly, posteriorly shining, impunctate, lateral furrows distinct, mesopleuræ granular Scutellum shining, with a few punctures, slightly impressed in the middle, surrounding sutures distinct Metanotum reticulate, without a ridge or channel, metapleuræ and the posterior face similarly sculptured, but appearing granular at certain angles, posterior face without lateral ridges or middle fovea Legs rather slender, middle tibiæ almost without spines Venation normal taking *argentinæ* as the normal type Abdomen shining, almost impunctate, somewhat constricted between the first two segments Color black, mandibles except the piceous apices, and the four anterior legs below the knees yellow, tegulæ and tubercles pallid Face below the antennæ with silvery pile Wings hyaline, somewhat iridescent, venation pale brownish, stigma darker

Habitat —Rowe, New Mexico (W P Cockerell)

A very distinct species, perhaps closets to *leguminiferus* Ckll and Fox, but different in the color of the legs, serrate antennæ, tubercle between the antennæ, and other characters Differs from *occidentalis* Fox in the sculpture of the front, etc.

Diodontus florissantensis n sp

Female —Length 3 5 mm Labrum slightly notched, but not excerted, and hard to see Clypeus with two strong teeth at the sides Head shining, with a few scattered punctures, frontal line very distinct Ocelli in a little less than an equilateral triangle, the distance between the lateral one about the same as the distance from one of them and the nearest eye margin Antennæ normal, the third joint hardly any longer than the fourth Pronotum not carinated Dorsulum and scutellum shining, sculptured like the head, lateral furrows of the dorsulum distinct, the suture between them strong Mesopleuræ coarsely granular, striato granular beneath Metanotum rugose, not channeled or with a carina, metapleuræ striato-granular, posterior face not ridged laterally, with the middle fovea rather weak, granular Legs normal, venation normal Abdomen shining, impunctate, not constricted between the segments, the pygidium triangular, with a few strong punctures Color black, mandibles except the piceous apices, and the tubercles yellowish, legs below the knees orange-red, the tarsi infuscated Wings clear hyaline, iridescent; venation black Besides the usual pubescence the insect is nude

Male.—The male differs from the female in having the clypeus deeply, narrowly notched, the antennæ serrate beneath, the posterior face with indications of lateral ridges, and the tegulæ are sometimes white The tibiæ sometimes have a black spot within.

Habitat.—Florissant, Colorado, June 19 to July 7 (T. D. A. Cockerell and S. A. Rohwer). Caught while flying over sandy soil, and on the foliage of *Ribes vallicola* and *Salix brachycarpa.*

Close to *rugosus* Fox, but may be separated by the U-shaped emargination of the clypeus (not V-shaped as in *rugosus*), and the teeth at the side of the clypeus in the female. It was found in company with *rugosus* which I have both sexes from Florissant.

NITELIOPSIS Saunders.

Up to the present time no male of the genus *Niteliopsis* Saunders has been known. My collecting in 1908 brought to light males representing nine species, eight of which were new. The male of another species *inermis* Cresson has been taken by Rev. G. Birkmann, and sent to me for study. In this paper eight new species are described, and a table to separate the species of this genus in boreal North America is given.

In the sense used in this paper the genus *Niteliopsis* includes all those species having three cubital cells, the second of which is petiolate; the mandibles not incised on the outer margin; the eyes converging slightly towards the vertex; the middle tibiæ with one apical spur, and the female without or with a poorly developed pygidial area. The relative length of the median and submedian cells, or the position of the first recurrent nervure is not of generic importance in this group.

TABLE OF SPECIES.

Females 1.
Males 9.
1. Abdomen red 2
Abdomen black 5.
2. All the tibiæ with a white stripe exteriorly 3.
All the tibiæ black 4.
3. Pronotum black; median and submedian cells equal. (California) **striatipes** Ashm.
Pronotum with two white lines; median and submedian cells not equal, submedian longer. (Colorado.) . **vierecki** Roh.

4. Third and fourth antennal joints equal; fifth joint not shorter than the fourth. (Colorado) **fosser** Roh.
Third antennal joint distinctly longer than fourth; fifth joint shorter than fourth. (Kansas) **foxii** Vier.
5 Mandibles black 6.
Mandibles yellowish 7.
6. Pronotum short, carinated anteriorly, with two white spots (U. S east of Rockies) **plenoculoides** Fox.
Pronotum longer, rounded anteriorly, black (Colorado.) **niger** Roh.
7. Submedian cell shorter than the median; posterior tibiæ black (Colorado) **sayi** Roh
Submedian and median cells equal or nearly so, if not, then the submedian is longer; posterior tibiæ black, with a white stripe 8
8 Four anterior femora and all the tibiæ beneath yellowish. (Texas.) **inermis** Cress.
Four anterior femora with only a yellow spot beneath, four anterior tibiæ all black; first recurrent nerv farther basal of first tran. cu **affinis** Roh
9 Postscutellum yellow or creamy 10.
Postscutellum black 11.
10 Furrow from the anterior ocellus not extending to near the vertex; head shining, the punctures more separated; emargination of the eighth ventral plate broad (Colorado) **lucidus** Roh.
No furrow from anterior ocellus to the vertex; head dull and closely punctured; emargination of the eighth ventral plate narrow (Texas) **inermis** Cress.
11. Mandibles black 12.
Mandibles yellowish 13.
12. Submedian cell distinctly longer than the median; abdomen red. **fossor** Roh.
Submedian and median cells equal or nearly so; abdomen black 13
13. Pronotum short, sharply truncate anteriorly; clypeus without a median tooth **plenoculoides** Fox
Pronotum longer rounded anteriorly; clypeus with a median tooth 14.
14. Clypeus with a small acute median tooth; first recurrent nervure free from the first tran. cu **niger** Roh.
Clypeus with a broad obtuse median tooth; first recurrent nervure interstitial with the first tran. cu **modestus** Roh
15 Submedian cell distinctly shorter than the median; pronotum black **sayi** Roh

Submedian cell equal or longer than the median; pronotum with two yellowish spots 16.
16. Metanotum with a triangular area **parvus** Roh.
Metanotum without a triangular area . 17.
17. Pronotum notched; abdomen red **vierecki** Roh.
Pronotum not notched; abdomen black .**affinis** Roh.

In looking over descriptions I find that Mr. Cameron (Tran. Am. Ent. Soc. xxvii, Nov., 1901, p. 315.) assigns a species (*flavomaculatus* Cam.) to the genus *Alyson* with some doubt; I think it should be placed in the genus *Niteliopsis*, because it has but one spur at the apex of the middle tibiæ—the genus *Alyson* has two apical spurs to the middle tibiæ. It is distinct from any known North American species, falling in the above table nearer *affinis* than any other species.

Niteliopsis inermis (Cresson) Ashmead.

Male.—Length 4 mm. Clypeus with the lateral anterior margin in the middle produced into a large quadrate tooth which is rounded at the apex, middle carina extending to the middle of the produced portion. Head opaque, finely granular; frontal carinæ broad, low, not very distinct, extending from near top of eyes to just above the antennæ, where they meet to form a well defined middle carina. Antennæ subclevate, joints 6–9 very slightly rounded beneath, apical joint acute, third joint a little longer than fourth. Ocelli in a little less than an equilateral triangle; no furrow from anterior ocellus Prothorax not sharply truncated nor carinated, anterior margin rounded. Dorsulum and scutellum very finely striato-rugose; suture between them distinct. Metanotum with a triangular area which is longitudinally striated; posterior face granular, with a shallow middle furrow. Metapleuræ transversely striato-granular. Radial cell truncate, appendiculation not strong, in the specimen before me it is wanting. Tran med a little beyond basal; first recurrent not squarely interstitial with the first tran. cu., but a little basal; second recurrent nervure curving basally and joining the second cubital at about the middle. Eight ventral plate deeply acutely notched, lobes broad. Color black; mandibles (apices piceous), tubercles, two spots on pronotum, postscutellum, most of the tegulæ, four anterior femora at the apex and beneath almost to the base, all the tibiæ and tarsi *creamy-yellow*. The middle within and the posterior tibiæ are reddish, and specimens may be found with a black stripe. Basal joints of the antennæ piceous. Face, clypeus, mesopleuræ, abdomen above with silvery pile. Wings hyaline, the apex dusky. Venation brown.

The above description was made from a male taken by Rev.

G Birkmann at Fedor, Texas, May 24, 1899 This species was originally described by Cresson (Tran Am Ent Soc iv, p 224, 1872) and placed in the genus *Nysson* with doubt Ashmead (Ent News, Oct , 1898, p 289) placed it in the genus *Niteliopsis* where it belongs The type is in U S Nat Mus It is a female The following notes made from it by Mr J C Crawford will be useful —

"In answer to your queries, let me say first that the head and prothorax of the type of *N inerme* are eaten off, so that I cannot answer in regards to those characters The second submarginal receives both recurrent nervures, the first one at the base, interstitial, not squarely but slightly basal The marginal is not distinctly appendiculate, but has a smoky darkening both on the anterior margin and at the lower apical angle The submedian cell is slightly longer than the median, the nervure joining very slightly beyond "

Niteliopsis licidis n sp

Male—Length 4 mm Clypeus with the lateral margins oblique, in the middle with a broad obtusely rounded tooth middle carina not very sharp Head finely granular vertex shining with separated punctures, frontal carinæ strongest where they unite which is a little more than the length of the scape above the level of the antennæ Ocelli in a little less than an equilateral triangle the furrow from the lower ocellus extending both above and below it Antennæ stout, thickening towards the apex second and third joints subequal, apical joints long, tapering to an acute apex, third joint equal with the fourth Prothorax rounded on the anterior margin, with a faint longitudinal carina in the middle Dorsulum with distinct, separate punctures, scutellum similarly sculptured, very slightly impressed Metanotum with a triangular shaped area which is longitudinally striated metapleuræ striato granular, posterior face with a middle fovea, transversely striated Radial cell with an appendiculation, but a faint one, however, first recurrent nervure joining the cubitus quite free from the first tran cu , second recurrent nervure joining the cubitus in about the middle of the second cubital, tran med and basal interstitial Abdomen punctured appearing granular, a constriction between the first and second segments, eighth ventral plate broadly, deeply, circularly emarginate, lobes narrow acute Color black, mandibles (apices piceous), two spots on the pronotum which almost unite, tubercles, tegulæ, postscutellum, apices of the four anterior femora and beneath almost to the base, all the tibiæ except a spot within, and tarsi *creamy-yellow;* basal joints of the flagellum testaceous beneath. Entire insect covered with silvery pile. Wings hyaline, the apex slightly dusky, iridescent; venation black.

The paratypes have the first recurrent nervures nearer in one case, almost interstitial with the first tran. cu.

Habitat.—Boulder, Colorado, August 5 and 1, 1908, and July 24, 1908 (S. A. Rohwer). Caught flying over dry, hot sand on a warm day.

Very close to *N. inermis* (Cress.), but distinguished by the characters given above.

Niteliopsis vierecki n. sp.

Female.—Length 4.5 mm. Clypeus with a broad low middle production; middle carina rather sharp. Head opaque, finely granular; frontal carinæ strong, starting on the inner orbits at about the level of the posterior ocelli, following the orbits downward some way then turning in abruptly, then turning inward and uniting a little above the antennæ (they enclose two U-shaped areas, the upper one wide and not entirely closed at the bottom). Ocelli in a little more than an equilateral triangle; a shallow, indistinct furrow extending above and below the anterior ocellus Antennæ slender, third and fourth joints subequal Prothorax rather narrow, not carinated anteriorly, notched in the middle. Dorsulum finely punctured or granular; scutellum similarly sculptured, not impressed. Metanotum granular without a triangluar area, with a longitudinal carina; metapleuræ granular, posteriorly finely striato-granular; posterior face with a deep oval-shaped fovea. Radial cell with a faint appendiculation; first recurrent nervure a little basad of the first tran. cu ; second recurrent nervure received beyond the middle of the second cubital cell; tran. med. beyond basal. Abdomen dullish, finely punctured, pygidial area poorly defined. Color black; mandibles testaceous; tegulæ, brownish; two spots on pronotum, tubercles in part, four anterior femora, all the tibiæ beneath *creamy;* tarsi brownish; abdomen red. Entire insect, but more especially the thorax with silvery pile. Wings hyaline, apex slightly dusky, iridescent; venation brown, weaking apically.

Male.—Length 4 mm. The male does not differ much from the female. The antennal joints are shorter, and the third joint is hairy beneath.

Habitat.—Boulder, Colorado, July 24, 1908 and August 4, and 5, 1908 (S. A. Rohwer). Caught while flying over hot, dry sand in the same locality as *N. lucidus.*

Very distinct. Named in honor of Mr. H. L. Viereck, in recognition of his work on American Hymenoptera.

Niteliopsis parvus n sp

Female —Unknown

Male —Length 3 mm Lateral anterior margin of the clypeus straight, in the middle punctured into a sharp small tooth Middle carinæ rather strong extending to the middle of the clypeal tooth Head rather coarsely granular, frontal carinæ prominent, of the double U-shaped type Ocelli in an acute triangle, the anterior ocellus largest, no ocellar furrow Antennæ long, slender, the apical joints acuminate, third and fourth joints subequal Prothorax short, rounded anteriorly, notched in the middle Dorsulum and scutellum closely punctured, scutellum not impressed Metanotum with a trianglur area which is striato-rugose, metapleuræ striato-granular, posterior face with a middle furrow Radial cell lanceolate without an appendiculation, second recurrent nervure received about as far basad of the second tran cu , as the first is basad of the first tran cu , tran med beyond the basal Abdomen normal Color black, two transverse spots on the pronotum, tubercles, four anterior femora beneath apically and the tibiæ exteriorly *yellowish-white* mandibles apically piceous, narrow apical margins of abdominal segments testaceous, tegulæ dark brown, with a small yellow spot Wings hyaline, iridescent, venation dark brown

Habitat —Boulder, Colorado, May 26 and June 1, 1908 (S A Rohwer), flying over dry, hot, sandy soil, which was strewn with small dry willow twigs

This species is very close to *N vierecki*, but the antennæ are longer and more slender than in that species, the metanotum has a triangular area, and the abdomen is black It also flies earlier in the season than does *vierecki*

Niteliopsis affinis n sp

Female —Length 4 25 mm Clypeus in the middle produced into a broad, triangular tooth, middle carina not strong Head rather coarsely granular, frontal carinæ not strong, rounded forming a broad V Ocelli in a little less than an equilateral triangle, a shallow furrow extending from the anterior ocellus to toward the antennæ Antennæ slender, extending backward to the tegulæ, third joint very little longer than fourth Prothorax wedge-shaped, the upper margin rounded, not notched in the middle Dorsulum and scutellum shining, sparsely, finely punctured, scutellum not impressed Metanotum granular, at the base with a few irregular striæ, a distinct median carina, metapleuræ and posterior face transversely striated, posterior face with a rounded fovea Radial cell rather short appendiculated, first recurrent nervure a little basad of first tran cu , second recurrent received a little beyond the middle of the second cubital, tran med and basal interstitial. Abdomen finely punctured; no pygidium; a distinct sheath. Color black; mandibles, to small spots on the pronotum, tubercles, a faint streak on the post scutellum, a small spot on the apex of the four anterior femora beneath, and a stripe on the posterior tibiæ *yellowish-white;* tarsi reddish-yellow, infuscated; tegulæ brownish. Wings dusky hyaline; venation brown. Face, clypeus and mesopleuræ with silvery pile.

Male.—Length 3 mm. The male differs from the female in having the metanotum more coarsely sculptured, the third antennal joint shorter than the fourth, the postscutellum black, all the tibiæ with a yellow stripe exteriorly, all the femora black, and the tarsi not infuscated.

Habitat.—Rifle, Colorado, July 3, 1908 (S. A. Rohwer). Caught while flying over dry, hot, sandy soil, in the morning about ten o'clock.

This species is close to *inermis* (Cress.), but the markings are not so bright or plentiful; the first recurrent nervure is farther basal of the first tran. cu.; and there is no triangular area on the metanotum of the male.

Niteliopsis plenoculoides Fox.

Male.—The male differs but little from the female. The pronotum is black, the spots on the tegulæ are wanting; the tubercles may or may not be yellow; the first recurrent nervure is nearer the first tran. cu but is still in the second cubital cell; and the submedian is a little longer than the median.

I have seen males from Fedor, Texas, April 19, 1901 (G. Birkmann); and Boulder, Colo., May 2, 1908 (S. A. Rohwer).

Niteliopsis sayi n. sp.

Female —Length 4 mm. Clypeus with a broad projection the angles of which are sharp; this projection has a sharp median tooth; middle carina not very strong. Head finely, closely punctured, appearing granular; frontal carinæ rounded, low, forming a broad V. Ocelli in a subacute triangle; a furrow extending from the anterior ocellus to the apex of the V formed by the frontal carinæ. Antennæ rather slender, third and fourth joints subequal. Prothorax much below the dorsulum, rounded anteriorly, not notched in the middle. Dorsulum and scutellum dull punctured like the head; scutellum not impressed. Metanotum granular with a median carina; metapleuræ and posterior face striato-granular; posterior face with a fovea. Radial cell appendiculate; first recurrent nervure received a little basad of the tran. cu.; second recurrent nervure received beyond the middle of the second cubital cell; submedian cell distinctly shorter than the median. Abdomen shining, almost impunctate, no pygidial area Color black, mandibles flavo-testaceous, sometimes there is a yellow spot on the tubercles, tarsi brownish, sometimes reddish-brown Face, clypeus and mesopleuræ with conspicuous silver pile Wings hyaline, iridescent, venation dark brown

Male—Length 3 5 mm Very much like the female, but differs in the absence of the acute median tooth of the clypeus, the third antennal joint is a little shorter than the fourth, the metanotum with a few basal striæ, and the tarsi are usually orange-red

Habitat—Florissant, Colorado, June 19, 1908 (S A Rohwer) Caught while flying over sandy soil in a dry creek bed, and under bushes of a wild gooseberry (*Ribes vallicola*)

A very distinct species, easily recognized by the short submedian cell, and the testaceous mandibles Dedicated to the pioneer entomologist Thomes Say

Nitellopsis niger n sp

Female—Length 4 5 mm Clypeus with a shining, obtuse median tooth, sides rounded Head coarsely granulate, frontal carinæ not apparent Ocelli in a little less than an equilateral triangle, no furrow from the anterior ocellus Antennæ hardly reaching to the tegulæ, joints three and four equal Prothorax lower than the dorsulum, not notched in the middle Dorsulum and scutellum closely, distinctly punctured, scutellum not impressed Metanotum granular, with a distinct median carina, metapleuræ and posterior face granular, posterior face with an indistinct fovea Radial cell appendiculate, first recurrent nervure a very little basad of the first tran cu, second recurrent nervure beyond the middle of second cubital cell, tran med and basal almost interstitial Abdomen smooth, shining, impunctate, pygidial area poorly defined Color black, face with a little silvery pile Wings dusky hyaline, venation brown

Male—Length 4 mm Clypeus with a very small acute median tooth, middle carina almost wanting Head not so coarsely granular as in female, frontal carinæ wanting First recurrent nervure farther from first tran cu than in female Middle carina of the metanotum is not so strong as in female Otherwise the above description should apply to the male

Habitat—Florissant and Boulder, Colorado The Florissant specimens were taken June 14 to 19, 1908, the Boulder ones June 1 and August 4, 1908 (S A Rohwer) A male and female from Florissant were chosen as the types This is a very distinct species, easily known from all except *modestus* by being entirely black.

Niteliopsis modestus n sp

Male—Length 4 mm Very much like *N niger*, but distinguished by the following characters —Clypeus with a broad obtuse median tooth, the first recurrent nervure interstitial with the first trans cu , and the more abundant silvery pile The narrow apical margin of the abdominal segments are testaceous The posterior tibiæ sometimes have a yellowish white stripe posteriorly Ocelli are in an equilateral triangle Wings hyaline, slightly dusky at the apex, iridescent

Habitat—Boulder, Colorado, June 1 and May 26, 1908 (S A Rohwer) Found in company of *N niger*, of which it may be but a variety

Niteliopsis fossor n sp

Female—Length 5 mm Anterior margin of the clypeus with an acute V-shaped tooth, middle carina strong Head granular, frontal carinæ of the double U-shaped type, but the upper U is wanting Ocelli in an acute triangle, a slight indication of a median furrow from anterior ocellus Antennæ slender, the third joint slightly longer than the fourth Prothorax rounded above almost as high as the dorsulum, very slightly notched Dorsulum and scutellum granular, scutellum faintly impressed Metanotum granular with a few striæ at the base, a distinct middle carina metapleuræ and posterior face striato-granular, posterior face with a triangular-shaped fovea Venation as in *plenoculoides*, except that the submedian cell is a little longer Abdomen shining, finely punctured pygidial area indistinct Color black, abdomen clear red, tarsi rufous very sparsely clothed with silvery pile Wings hyaline, apical margin slightly dusky, iridescent, venation brown

Male—Length 4 5 mm The male is much like the female The third and fourth antennal joints with a spine beneath The longitudinal carina is weaker than in the female, and there is a white stripe on the posterior tibiæ exteriorly

Habitat—Boulder, Colorado, May 15, June 1, 1908, and Rifle, Colorado, July 3, 1908 (S A Rohwer)

This is much like *foxii* Viereck, but the third antennal joint is not distinctly longer than the fourth, the fifth joint is not, "shorter than the fourth "

Oxybelus polygoni n sp

Female—Length 11 mm width of thorax 4 mm Very large and robust Clypeus with the usual truncate portion, clypeal carina not very strong, but still distinct Entire head below the ocelli closely, rather finely punctured, vertex and occiput with larger more separate punctures Median tubercle of the vertex rather large, shining Third antennal joint somewhat longer than the fourth, apical joint much longer than the preceeding one, rather acute Pronotum rather strongly carinated, mesonotum rather closely punctured, depressed in the middle anteriorly, mesopleuræ shining, with large, rather close punctures Scutellum punctured like the dorsulum, strongly carinated, as is also the postscutellum Squamæ broad at base, apex acute and curved inwardly, postscutellum between them yellow Spine short, stout, truncate at apex, broader at base gradually tapering to the apex Metanotum with strong oblique striæ between which are fine, close punctures, metapleuræ punctured, with some transverse striæ basally Posterior face finely closely punctured, sharply defined laterally by carinæ, fovea V shaped and strong Legs stout, tibiæ strongly spined First dorsal abdominal with a distinct median notch, abdomen dorsally punctured like dorsulum ventrally similarly punctured except along the apical margins of the segments which are shining and impunctate Pygidium well defined, rounded at the apex Color black antennæ and tarsi somewhat brownish apical abdominal segment and anterior third of dorsulum red, tegulæ a little lighter red, tubercles lateral spots on abdominal segments 1 to 4, those on the first round, *creamy white* Face with silvery hair thorax with short gray hair Wings hyaline, very faintly yellowish, slightly iridescent venation dark brown

Habitat —Boulder, Colorado, September 10, 1908 (S A Rohwer), at flowers of *Polygonum* sp

This is the largest Oxybelid I have ever seen It is related to *O cornutus* var *quadricolor* Ckll and Baker, but the spine is shorter, broader, and tapers to a truncate apex The sides of the metathorax have striæ which are not present in *quadricolor* The markings are whitish as in *striatus* Baker, but it is very different from that species

Oxybelus manni n sp

Female —Length 8 mm Anterior margin of the clypeus as usual the process prominent Head below the ocelli closely, rather finely punctured, vertex and occiput with larger, sparser punctures vertex without a median tubercle Antennæ short and stout, third joint broader at the apex, about the same length as the fourth Pronotum not strongly carinated, lateral angles not strong Dorsulum with large separated punctures mesopleura shining, with longitudinal striæ and punctures Scutellum shining with but large punctures except on the posterior margin which is rather closely punctured longitudinal carina evident, but not strong postscutellum with a rather strong median carina, punctured like the posterior part of the scutellum. Squamæ rather short and not strongly curved, apex sharp; spine very short, stout, sharp, strongly tapering to apex, channeled above. Metanotum with strong ridges; metapleuræ with strongly transverse striæ; posterior face bounded laterally by strong ridges, punctured, fovea triangular, sharply pointed. Legs rather strongly spined. Abdomen dorsally shining, with rather large sparse punctures; first segment with a dimple in the middle; ventrally the abdomen is more sparsely punctured; the ventral segments ridged, so when the abdomen is seen at certain angles it appears to have lateral spines. Pygidium much narrower at the rounded apex than at the base. Color black; tegulæ pale brownish; tarsi with a brownish tinge; a small whitish spot on the first four abdominal segments at the side. Face with silvery pile; apex of the abdomen with coarse red hair; rest of insect nude. Wings slightly yellowish hyaline; venation reddish-brown.

Habitat.—Pullman, Washington, August 2, 1908. Collected by Mr. W. M. Mann, for whom it is named.

This species has its nearest ally in *O. subulatus* Rob., but it is blacker than that species usually is, the sculpture of the dorsulum and scutellum is different, and the spine is shorter.

Oxybelus denverensis n. sp.

Female.—Length 8 mm Anterior margin of the clypeus as usual, process rather pointed, not as prominent as in *manni*. Mandibles with a small tooth within near the base. Head closely punctured, the punctures of the vertex a little sparser; punctures of the cheeks elongate appearing striato-punctate; vertex with a median tubercle. Antennæ subclavate, third joint longer than the fourth. Pronotum not strongly carinated, lateral angles sharp. Dorsulum with large separate punctures, shining, impressed in the middle anteriorly; mesopleuræ punctured like the dorsulum, but posteriorly the punctures are smaller and become elongate Suture between the scutellum and the dorsulum foveolated; scutellum punctured like the dorsulum, with a median carina; postscutellum without a carina. Squamæ rather slender, strongly curved. spine rather long, almost parallel-sided, but a little wider at the apex; channeled above, at the apex either entire or slightly emarginate, at some angles it looks entire, at others emarginate. Metanotum with a smooth space below the spine, the rest with oblique striæ; metapleuræ polished, shining, at the sides with fine transverse striæ; posterior face strongly margined laterally; fovea shining, sharply defined, triangular, the rest of the posterior face with fine, close punctures. Legs only moderately spinose. Abdomen dorsally with distinct, separate punctures; first segment not impressed; ventrally the abdomen is shining, with very few punctures; pygidium normal. Color black; tubercles, postscutellum, tibiæ and tarsi exteriorly, spots on the dorsal abdominal segments 1–5, those on the fifth segment connected, and the ones on the fourth nearly so, *white*, squamæ and spine white hyaline Face with silvery pubescence Wings hyaline, somewhat milky, venation pale brown

Habitat—Denver, Colorado, August 8, 1908 (Mrs C Bennett), at flowers of *Peritoma serrulatum*

A very distinct species, not closely related to any one described from North America The spine is intermediate between *Notoglossa* and *Oxybelus*, but the mandibles have a tooth within, so it should be placed in *Oxybelus*

Notoglossa pacifica n sp

Male—Length 5 mm Anterior margin of the clypeus with about six small, obtuse, indistinct teeth, medial carina almost wanting Facial quadangle narrow, slightly broader below Head finely closely punctured, appearing somewhat granular, punctures of the cheeks elongate Ocelli in a low triangle, the distance between the lateral ocelli about twice as great as the distance between one of them and the nearest eye margin Antennæ short, robust, joints not well defined Pronotum narrow, not strongly ridged or sharply angled Dorsulum closely, rather finely punctured, mesopleuræ similarly, but not so closely punctured, suture fairly distinct Scutellum with larger punctures and somewhat more coarsely punctured than the dorsulum, with a middle carina posteriorly which extends on the postscutellum, postscutellum closely punctured Squamæ very broad, with three teeth at the apex, the middle one the longest and the most slender, the outer one broader and slightly curved Spine broad, a little wider at the apex, deeply emarginate, the lobes broad, rounded at the apex Metanotum at the sides obliquely striated, beneath the spine smooth, metapleuræ with transverse striæ which are somewhat curved, posterior face with transverse striæ, fovea triangular, shining, lateral carinæ fairly strong Legs robust, rather strongly spined Transverse median and basal nervures interstitial First abdominal segment impressed medially, abdomen dorsally with distinct rather close punctures, ventrally more shining and with more widely separated punctures, segments four, five and six with curved lateral spines. Lobes of the emargination of the eight ventral plate narrow and acute Color black, palpi, tegulæ and spine at sides brownish, mandibles except apices which are piceous, tubercles, knees and legs below except a spot within, and narrow lines on abdominal segments 1–5 *lemon-yellow* Face, sides of thorax, legs and apical margins of the abdominal segments with silvery pile, dorsulum with short gray hair Wings hyaline, iridescent, venation dark brown Squamæ white-hyaline Antennæ towards the apex reddish

Habitat.—Pullman, Washington, August 2, 1908 (W. M. Mann).

This species belongs near *N. americana* Rob. and *N. emarginata* (Say), but differs from these species in the shape of the squamæ, the absence of yellow on the scutellum and pronotum (this, however, is not always constant in *americana* and *emarginata*), and the much weaker carina on the pronotum; and clypeal carina is much better developed in *N. americana* and *N. emarginata.* The basal nervure and tran. med. in none of my specimens of *emarginata* are interstitial, but the tran. med. is beyond. Taken the same time as *N. emarginata* (Say).

DIPLOPLECTRON Fox.

Diploplectron rufoantennatus n. sp.

Male—Length 4.5 mm. Anterior margin of the clypeus rounded out, in the middle produced into bidentate process; near the eye there is a distinct tooth. Head finely closely punctured, with a few large irregular punctures intermixed; furrow from the anterior ocellus rather faint; ocelli in an equilateral triangle; distance between the eyes at the top about the same as the length of antennal joints 3–4 Antennæ with the joints very distinct; joint three only slightly longer than four; the basal joints with a few long hairs. Prothorax closely, finely punctured; dorsulum, scutellum and mesopleuræ not so densely punctured as the prothorax and more shining. Metanotum finely granular; metapleuræ finely striated. Legs not so strongly covered with bristles as usual. Abdomen impunctate, shining. Black; clypeus, mandibles except the apex, a quadrate spot on the inner orbits and the tubercles *cream-color*, antennæ, tibiæ and tarsi rufous. Wings slightly yellowish-hyaline; costal apex of the posterior wings with a smoky spot; venation brown.

Habitat.—Florissant, Colorado, June 14, 1908 (S. A. Rohwer). Caught while flying over dry sand.

Easily known by the rufous antennæ from other black males which have been described. It may be the male of *fossor*, but the furrow from the anterior ocellus is distnict, the front is more densely punctured and the antennæ are rufous.

Diploplectron fossor n. sp.

Female.—Length 4.25 mm. Anterior margin of the clypeus rounded out, produced in the middle into a bidentate process. Head impunctate or if punctured only very finely so, there are, however, a few rather large punctures scattered over it, line from the anterior ocellus distinct but not complete, ocelli in an equilateral triangle, each ocellus in a small pit, distance between the eyes at the top about equal to the length of the antennal joints 3–4, third and fourth antennal joints equal Dorsulum, scutellum and mesopleuræ shining, with a few large punctures Metanotum finely granular metapleuræ finely striated Tarsi with some short stiff hairs Abdomen shining, impunctate Black, mandibles, all the tarsi and anterior tibiæ piceous or rufous Wings slightly yellowish-hyaline venation brown

Habitat—Florissant, Colorado, June 12, 1908 (S A Rohwer) Flying over warm, dry sand A female from Boulder, Colorado, August 4, 1908 (S A Rohwer) is a trifle larger, the metapleura is more strongly striated, the third cubital is a little narrower on the cubitus, and there is a more or less distinct longitudinal carina on the metanotum

Dipoplectron bidentatiformis n sp

Male—Length 5 6 mm Somewhat more robust than usual Anterior margin of the clypeus in the middle produced into a bidentate process (the teeth more widely separated than in *D rufoantennatus*), at the sides near the eye there is a distinct rather sharp tooth Front rather strongly, closely punctured vertex with a few large punctures, no line from the anterior ocellus ocelli in an acute triangle, distance between the eyes at the top a little less than the length of the antennal joints 3–4 Third antennal joint longer than fourth apical joint obtusely rounded at the apex Pronotum punctured like the front Dorsulum, scutellum and mesopleuræ not so strongly punctured as the prothorax Metanotum finely granular, bounded by a curved furrow, metapleuræ finely granular with a few transverse striæ Femora robust, tibiæ with stout spines Abdomen microscopically punctured, with a few larger punctures Black, clypeus, except anterior margin, mandibles except the apex, triangular spot on lower inner orbits creamy white, anterior femora beneath, all the tibiæ and tarsi rufous (the posterior tibiæ and their tarsi are very dark, almost piceous) Wings dusky hyaline, costal apex of the posterior wings with a large smoky spot, venation dark brown

Habitat—Boulder, Colorado, June 1, 1908 (S A Rohwer), caught flying over dry sand

Closely related to *D bidentatus*, Ashm and may be its male, but the fore wings are without a cloud behind the radial cell, the thorax is densely punctured, and there are perhaps other characters, but the original description is very short

Diploplectron florissantensis n. sp.

Female.—Length 6.5 mm. Clypeus rounded on the anterior margin, an obtuse tooth medially. Head finely, closely punctures with a few large punctures intermixed; punctures on the vertex and occiput finer and less dense. Area above and between the antennæ slightly raised, in the middle with a distinct linear fovea; ocelli in an equilateral triangle; third antennal joint slightly longer than the fourth. Distance between the eyes at the top about the same as the length of the antennal joints 3–4. Dorsulum and scutellum finely punctured with some large punctures intermixed; pleuræ finely granular, at the base with a few short striæ. Legs, more especially the tibiæ and tarsi, with bristle-like hairs. Basal segments of the abdomen impunctate, the apical ones with a few punctures. Head, thorax and legs entirely black; abdomen rufous, the fifth segment brownish. Wings yellowish-hyaline, darkest at the base; venation pale brown.

Habitat.—Florissant, Colorado, June 28, 1908 (S. A. Rohwer).

A very distinct species, not close to any described one.

Diploplectron ashmeadi n. sp.

Male.—Length 5 mm. Anterior margin of the clypeus rounded, in the middle produced into a bidentate process (the teeth of which are of about the same width as *D. rufoantennatus*); the lateral teeth not as strong as in the other species. Front finely granular or punctured, with a few large punctures; line from the lower ocellus distinct, but not strong; ocelli in an acute triangle; space between the eyes at the top less than the length af antennal joints 3 and 4 but greater than the length of joints 2–3 Third joint equal in length with the fourth; apical joint obtuse at the apex; basal joints with some stiff hair. Prothorax closely rather coarsely punctured; anterior part of the dorsulum rather closely punctured; posterior part of the dorsulum, scutellum and mesopleuræ shining, with a few large punctures. Metanotum finely granular, bounded by a curved furrow; metapleuræ obliquely striated. First joint of the anterior tarsi emarginate beneath; legs normal. Abdomen shining, impunctate Head, except a black spot between the eyes at the top and a yellow spot on the inner orbits, prothorax, dorsulum, mesopleuræ, four anterior legs *ferruginous*, metathorax except a spot above the posterior coxæ, mesopectus, abdomen, posterior legs (the tibiæ and tarsi are piceous) *black*. Wings dusky hyaline; apical, costal margin of the posterior wings with a large smoky spot; venation brown.

Habitat.—Rifle, Colorado, July 3, 1908 (S. A. Rohwer).

A very distinct species. Named for Dr. Ashmead.

Diploplectron cressoni n. sp.

Female.—Length 5 mm. Clypeus rounded on the anterior margin, without teeth. Head very finely closely punctured, with some large punctures intermixed; a faint line from the lower ocellus to the clypeus; vertex with the large punctures denser than on the front; a linear fovea behind each lateral ocellus; distance between the eyes at the top less than the length of antennal joints 3–4, but greater than the length of joints 2–3; ocelli in a rather acute triangle. Antennal joints three and four equal; basal joints covered with some bristle-like hair. Dorsulum, scutellum and mesopleuræ shining with a few punctures. Metanotum finely granular; metapleuræ with fine oblique striæ; entire metathorax subopaque Anterior tarsi with a feeble comb; tibiæ and tarsi sparsely clothed with bristle-like hairs. Abdomen shining, very minutely punctured Color uniformly pale ferruginous; apex of the mandibles, palpi, apical part of the antennæ piceous or brownish Wings yellowish hyaline; venation yellowish

Habitat.—Boulder, Colorado, June 1, 1908 (S. A. Rohwer).

This species is most closely related to *D. ferrugineus* Ashm., but there is no smoky spot in the wings, and there are no black markings. Dedicated to Mr. E. T. Cresson.

Diploplectron relativus n. sp

Female.—Length 5 mm. Anterior margin of the clypeus in the middle produced into two sharp teeth, which are more widely separated than usual The antennæ except the four basal joints, a spot enclosing the ocelli, pectus, metanotum in part above and the posterior femora at the base black, the rest of the insect ferruginous Besides the above characters this insect is exactly like *D cressoni*, and if the clypeus was not bidentate it could not be separated from it

Habitat.—Boulder, Colorado, August 4, 1908 (S. A. Rohwer).

Mr. H. S. Smith's reference to *D. ferrugineous* Ashm. (Univ. Nebr. Studies, vii, Oct. 1908, No. 4, p. 15) is perhaps to this species or *cressoni*, and not *ferrugineous*.

The species of *Diploplectron* may be separated by the following table:

Anterior margin of the clypeus produced into a bidentate process 1.
Anterior margin of the clypeus without teeth 6.
1. Head, thorax and abdomen black 2.
Head and thorax mostly ferruginous 5.
2. Costal apical margin of the posterior wings with a smoky spot 3.
Posterior wings without such a spot . . 4.
3. Face black without white markings; anterior wings without a cloud; front shining. ... . **fossor** Roh.

Face black with white markings; anterior wings with a cloud in the raidal cell; "front closely punctured". **bidentatus** Ashm.

4 Antennæ rufous; tubercles white; line from lower ocellus distinct . **rufoantennatus** Roh.

Antennæ black; tubercles black; line from the lower ocellus wanting **bidentatiformis** Roh.

5. Abdomen black; posterior wings with an apical cloud; front opaque **ashmeadi** Roh.

Abdomen ferruginous; posterior wings without an apical cloud; front shining **relativus** Roh

6 Head and thorax at least black 7.

Head, thorax and abdomen ferruginous 8.

7. Abdomen entirely rufous; head, thorax and legs entirely black. **florissantensis** Roh.

Abdomen black; head, thorax and legs more or less marked 8.

8 Prouotum black; antennæ black; anterior femore black. **foxii** Ashm.

Pronotum brownish-yellow; four basal joints of the antennæ ferruginous; anterior femora ferruginous **brunneipes** (Cresson).

9. A large smoky spot behind third cubital cell; a black spot enclosing the ocelli **ferruginous** Ashm.

No large spot behind third cubital cell; no black on the head **cressoni** Roh.

Dr. Ashmead does not say anything about the structure of the clypeus of *ferruginous*. If it is bidentate it would fall next to *relativus*, from which it would be known by the same characters that separate it from *cressoni*.

Miscophinus galei n sp

Female.—Length 4 mm Clypeus on the anterior margin rounded out, apparently without teeth; closely, finely punctured; carina not strongly marked Front and vertex finely granular, near the antennæ parted by a faint furrow, ocelli in an acute triangle, area around the lateral ones slightly depressed Facial quadrangle much longer than broad Third and fourth antennal joints equal Dorsulum and prothorax sculptured like the front. Scutellum not impressed, sculptured like dorsulum. Metapleuræ and posterior face transversely striated. Metanotum granular, with a distinct median furrow Legs not strongly spinose Abdomen above finely tessellated; apical part of the vertex with long bristles Color: Head and thorax bronzy-green; abdomen and legs black; tegulæ and lower part of legs piceous; clypeus, thorax (more especially the metathorax) and apical margin of first two abdominal segments with silvery pile; basal three-fifths of anterior wing and the posterior wing hyaline or subhyaline, iridescent, apical two-fifths of the wing strongly dusky, venation dark brown

Male—Length 5 mm The male differs from the female in having the anterior margin of the clypeus with three obtuse teeth The mandibles, scape beneath, spot on trochanters and legs below femora, first abdominal segment beneath *rufo ferrigenous* The striæ of the metapleuræ are oblique Head much wider than the thorax, but not twice

Habitat—♀ Florissant, Colorado, June 20, 1908, "on sand" (Roh), ♂ Boulder, Colorado, May 26, 1908 (Roh) On warm sand

This species is quite distinct from any hitherto described, being easily known by the bronzy-green head and thorax

Dedicated to the early Colorado naturalist, Denis Gale, who worked many years among the birds and mammals of Boulder County

Miscophinus nigrescens n sp

Female—Length 4 25 mm Middle portion of the clypeus somewhat convex, closely, finely punctured, anterior margin without teeth· Head finely granular, no impressed line from the anterior ocellus Ocelli in a little less than an equilateral triangle Eyes slightly converging towards the top, distance between them at the vertex slightly less than the length of antennal joints 3 and 4 Third antennal joint distinctly longer than the fourth Prothorax, dorsulum, scutellum and mesopleuræ finely granular Metanotum finely granular and with a few striæ, the middle carina distinct Metapleuræ finely striated, at certain angles appearing granular Posterior face with a triangular fovea near the middle upper margin Tibiæ with a few feeble spines Venation normal Abdomen finely tessellate, the venter with the bristles less numerous Black mandibles, margin of the second abdominal segment, all the tarsi, a stripe on the posterior part of the posterior tibiæ *testaceous* Almost no pile on the insect Basal half of the wings dusky hyaline, the apical half dark fuscous, venation black

Habitat—Rifle, Colorado, July 3, 1908 (Roh) Flying over warm sand among sage brush

This species is related to *M californicus* Ashm, but the darker legs and scape, the black tegulæ will serve to separate it from that species

Miscophinus cyanurus n sp

Female—Length 5 5 mm Anterior margin of the clypeus divided into three broad lobes the lateral lobes narrow, middle lobe slightly emarginate in the middle; very finely punctured. Head very finely granular. Eyes distinctly converging toward the vertex; distance between them less than the length of the antennal joints 3 and 4. Ocelli in an acute triangle, no furrow from the anterior one. Third and fourth antennal joints equal, apical joint rather acute. Prothorax not reaching the level of the dorsulum. Pro- and mesothorax, also scutellum finely granular Metanotum finely granular with a fine median carina. Metapleuræ obliquely striated. Posterior face carinated above, with a triangular fovea near top, shining. Legs feebly spined. Venation normal Abdomen shining, perhaps very finely tessellate. Color· Head and thorax dull black; abdomen shining dark blue; apex of the mandibles piceous; front, thorax and three dorsal abdominal segments with sparse silvery pile; basal two-thirds of wings hyaline, apical third dusky; venation black.

Male.—Length 4 mm. The lobes of the clypeus are not as distinct as in the female. The middle carina of the metanotum is not complete basally. The mandibles are entirely black, otherwise it is like the female.

Habitat.—♀ Boulder, Colorado, August 4, 1908; ♂ May 2, 1908; ♂ May 15, 1908 (Roh.).

The dark blue abdomen and black legs separate this from other species.

Miscophinus maurus n. sp.

Female.—Length 3.5 mm. Anterior margin of the clypeus not dentate; closely finely punctured; middle carina quite distinct. Head finely granular. Eyes but slightly converging above, distance between them at the vertex greater than the length of antennal joints 3 and 4, about the same as 2, 3 and 4. Ocelli in a rather low triangle; the lower one in a pit which elongates into a furrow toward the clypeus. Antennæ rather short and stout; joints three and four equal. Scutellum, pro- and mesothorax finely granular. Metanotum granular, with a distinct median carina. Metapleuræ striato-granular. Posterior face with some strong transverse striæ, an arrow-shaped fovea. Legs without spines. Second cubital cell small. Abdomen finely tessellate. Black; mandibles and tarsi piceous. Clypeus, thorax and abdomen with silvery pile; that of the clypeus denser. Wings smoky hyaline, apices a little darker; venation dark brown.

Male.—Length 4.5 mm. The middle lobe of clypeus more acute than in female. The furrow from anterior ocellus not so strong. Third antennal joint a little longer than fourth. Silvery pile denser. Wings not so dark. Otherwise it agrees with the female.

A paratype female differs from the type in having the mandibles black; the anterior ocellus larger, the depression which it occupies smaller; and the ocelli in a nearer equilateral triangle.

Habitat—Two ♀s, Florissant, Colorado, June 19, 1908 (Roh), ♂ Boulder, Colorado, June 1, 1908 (Roh)

This species is very close to *M nigrescens* Roh , but the third and fourth antennal joints are equal, and there is a furro from the anterior ocellus

Tachytes minor n sp

Male—Length 7 mm Anterior margin of the clypeus rounded out, not dentate or emarginate, the lateral angles obtuse, not strongly raised in the middle, rather coarsely granular Front with distinct, well separated punctures, a shining impressed line from lower ocellus to between the insersition of the antennæ Interocellar area a little more closely punctured than the front, parted by a distinct furrow Occiput seen from in front slightly depressed Vertex not strongly punctured, the medial furrow distinct Space between the eyes at the vertex a little greater than the length of antennal joints 3 and 4 Antennal joints 3, 4, 5 and 6 about equal in length, apical joint about the same length as the preceeding one, rather strongly tapering Thorax shining, the dorsulum sparsely punctured with rather small punctures, scutellum similarly sculptured, not impressed mesopleuræ sculptured like the dorsulum, with a distinct, elongate, transverse fovea below wings, metanotum somewhat more closely punctured than the dorsulum, the median furrow distinct, broadening into a narrow fovea at the apex, metapleuræ subtilly sculptured, posterior face with a deep fovea broader above Anterior coxæ with a very short spine at the apex of which is a long white bristle Anterior femora at the base beneath only slightly emarginate Longer spur of hind tibiæ shorter than the basitarsus Radial cell where joined by the cubitus rather broader than usual, the appendiculation wanting Abdomen shining, very minutelv punctured above beneath with some large punctures Pygidium with rather sparse pubescence Emargination of the eight ventral plate deep, broadly circular, the lobes sharp, subtriangular Black, palpi brownish, mandibles (apices piceous) and tegulæ ferruginous, legs below knees reddish, spines whitish, eyes (dry) greenish brown Wings clear hyaline, strongly iridescent, venation ferruginous Clypeus and front also legs beneath more or less with silvery pubescence, thorax and abdomen with white hair

Habitat—Lee Co , Texas, June 21, 1908 (G Birkmann)

This species look much like a *Tachysphex*, but the shape of the ocelli and the hairy pygidium exclude it from that genus.

It belongs to Section II and in Fox's table runs out at 3 because of the black abdomen and partly rufous legs It is somewhat related to *parvus* Fox, but the wings are clear throughout, the fourth antennal joint is not longer than the third, the metanotum is furrowed, etc. It may be known from *sericatus* Cress., by the smaller size, the sparsely punctured thorax and vertex, etc. It is also related to *obscuranus* Roh. (from the same locality), but the red legs, the impressed line from the lower ocellus, the shining thorax, the ferruginous venation will easily separate it from that species.

Tachytes minutus n. sp.

Male.—Length 5 mm Anterior margin of the clypeus rounded out, with two small lateral teeth, these teeth are quite small and specimens may be found in which they will be wanting; not carinated; granular. Front and vertex shining with a few scattered distinct punctures Interocellar area strongly parted; an indicated furrow to between antennæ; behind the lateral ocelli is an elongated depression. Space between the eyes at the vertex about the same as the length of the second, third and fourth antennal joints. Antennæ normal; joint three a very little shorter than joint four; apical joint a little longer than the preceeding one, tapering. Dorsulum and scutellum shining, with distinct, separated punctures. Scutellum not impressed Mesopleuræ punctured similar to dorsulum. Metanotum at the base finely granular, the apical third impunctate, highly polished, with a small fovea in the middle Metapleuræ punctured like mesopleuræ. Posterior face rather coarsely granular, with a distinct V-shaped fovea above. Legs rather robust; rather strongly spined; longer spur of the posterior tarsi longer than basitarsus; anterior femora not emarginate; anterior coxæ without a spine. Second cubital cell broader at the top than the third. Abdomen shining, finely tessellated. Eight ventral plate deeply, broadly, subangularly emarginate; lobes narrow and acute Black; mandibles piceous; tegulæ and four apical joints of tarsi ferruginous or rufous Front, clypeus, thorax, abdomen somewhat, with long silvery hairs Hair of the pygidial area a little yellowish. Wings hyaline, iridescent; venation pale brownish

Habitat.—Lee Co., Texas, September and August, 1905 (G. Birkmann).

This is the smallest *Tachytes* yet described from North America. It looks much like a *Tachysphex*, but has the ocelli and hairy pygidium of *Tachytes*. According to Mr. Fox's arrangement, it belongs to Section I, but it is not close to any species in that group. It is, however, similar to species belonging to Section II. It is most closely related to *T. minor* Roh., from the same locality, but the black tibiæ and more shinging front exclude it from that species.

Pisonopsis birkmanni n sp

Female—Length 6 mm , length of anterior wing 4 mm Robust Clypeus punctured like the front, produced in the middle into a shining, acute triangular process Front and vertex rather closely punctured with distinct punctures, cheeks and occiput shining, punctured with smaller punctures The distance between the eyes at the vertex very little if any less than the distance at the clypeus, a little below the middle distinctly, though not strongly so emarginate Third and fourth joints of the antennæ equal Dorsulum and scutellum punctured with rather large, well separated punctures, the punctures about uniform throughout, suture between the scutellum and dosulum strong, scutellum not impressed, mesopleuræ punctured like the dorsulum in the middle, around the sides more densely so Metanotum with a depressed triangular area, which is transversely striated, somewhat obliquely so anteriorly Rest of the metathorax is punctured about as the front is, at some angles it appears finely striated Posterior face of the metathorax with a deep fovea at the upper middle Except the spurs the legs are unarmed Longer spur of hind tibiæ almost as long as the basal joint of the hind tarsi Tranv med n almost interstitial with the basal nervure, but placed just a little before it radial cell rounded at the apex, not appendiculate third cubital cell as wide on the rad n as on the cub n First abdominal segment emarginate basally, first three abdominal segments constricted apically, the third not so strongly so as the two preceeding, abdomen shining, sparsely punctured Pygidium apparently wanting

Black, except the posterior margin of the tubercles, which are white Clypeus, cheeks, parts of the thorax, and sides of the first three abdominal segments with sparse, white hair Wings dusky hyaline, venation dark brown

Habitat—Lee Co , Texas, June, 1908 (G Birkmann)

This species has its nearest ally in *P triangularis* Ashm (Colo), but it may be separated from that species by having the metathorax punctured instead of rugose, and not having the ventral segments 2–5 testaceous along the apical margin

It is quite distinct from *P clypeata* Fox (Nevada), easily known by the different sculpture and the black abdomen

The last abdominal segment is slightly retracted, but as far as I can see, there is no pygidium In this it departs from the genus The eyes are not strongly emarginate and at first one might take it for a *Plenoculus*, but there is no appendiculation to the raidal cell, the eyes do not converge towards the vertex and the pronotum reaches almost to the level of the dorsulum There are also other things which will exclude it from *Plenoculus*.

Trypoxylon cockerellæ n. sp.

Female.—Length about 15 mm. Clypeus closely, finely punctured; not carinated; in the middle anterior margin deeply, angularly emarginate, at the side of this emargination there is a very small tooth. Front closely punctured with large punctures; below the anterior ocellus impressed; a short longitudinal carina above the antennæ, this carina is somewhat indistinct; occiput shining, impunctate, distinctly emarginate in the middle. Space between the eyes at the clypeus slightly less than at the vertex; at the clypeus the distance is about the same as the length of the third antennal joint, not less. First joint of the antennæ ovate, broad, twice as wide as the third joint; third joint very slightly curved, about a third longer than the fourth; fourth joint a very little longer than the fifth; apical joint longer than the preceeding one. Prothorax and dorsulum shining, sparsely punctured with distinct punctures; on the dorsulum about the length of the tegulæ above the tegulæ is an elongate fovea. Scutellum punctured as dorsulum, not impressed. Mesopleuræ punctured as dorsulum Metanotum with a triangular area which at the posterior part is finely transversely striated, the remaining anterior portion is more coarsely longitudinally or slightly obliquely striated; a distinct basal longitudinal channel. Metapleuræ shining, finely punctured. Posterior face rugose, with a medinal channel. Spur of the anterior tibiæ, inner spur of posterior tibiæ curved. First abdominal segment nodose at apex, second and third raised, the second not as strongly so as in *T. rufozoualis* Fox; apical segment sharply pointed at the apex; opaque, finely punctured; apical ventral segment with some long hairs.

Black; basal two-thirds of the second abdominal segment and sides of the first *rufous*. Palpi brownish. Cheeks, front below emargination of eyes, clypeus, pleuræ and pectus, also sides of abdominal segments with silvery pubescence Dorsulum with gray pubescence. Wings hyaline, apical margin dusky; venation black. Outer side of posterior tibiæ with golden pubescence Posterior tarsi in part flavus.

Habitat.—Boulder, Colorado, July 17, 1908 (Mrs. W. P. Cockerell). On foliage of Virginia creeper (*Parthenocissus*).

In Fox's table (N. Am. Larridæ) this species runs out at 12, because the posterior tarsi are black and the second segment is only rufous. Besides differing from *T. rufozonalis* Fox in color, it differs from it in not having the clypeus "slightly carinated" nor the "postscutellum slightly impressed." *T. cockerellæ* is most closely related to *T. californicus* Sauss., but the darker abdomen will at once separate it from that species.

Photopsis seminanula n. sp.

Female.—Length 4 mm.; sting 2 mm. Mandibles acute, simple, with a deep incise beneath near the base; maler space about as long as the slightly oval eyes; eyes without facets; antennal foveæ not bounded by a transverse carina above. Scape curved at the apex, as long as antennal joints 2 and 4 joints 3 and 4 of about equal length Cheeks not armed Head sparsely punctured, at some angles the punctures appear elongate Thorax longer than wide anteriorly, the anterior angles sharp, not dentate the anterior half of the thorax is parallel sided, the posterior part narrowing, the posterior face oblique, dorsulum and posterior face rather granular Intermediate tibiæ much shorter than the tibiæ legs rather robust First abdominal segment with the second, very slightly nodose Second segment with large distinct punctures punctures somewhat more dense in the anterior middle, but nowhere confluent Pygidium fairly well defined, rounded at the apex, finely granular Sting very long Antennæ yellowish ferruginous, apices of the mandibles, femora and tibiæ piceous the rest of the insect ferruginous Sparsely clothed with long pale hairs the apical margins of segments two and three with a dense fringe of white hair

Habitat—Boulder, Colorado, "in house," October 21 (W P and T D A Cockerell)

The first segment is but slightly nodose with the second, and there is a little doubt, in my mind, in which group this species should be placed, but inasmuch as it is not near to any species in the group *anthrophoræ*, and it is close to *nanula* D T, which is placed in group *imperalis*, I would place it in that group It may be separated from *nanula* by the absence of pubescence from the scape, the piceous legs, and the abdomen is not "closely punctured" at the sides

Photopsis capricornis n sp

Female—Length about 6 mm Mandibles slender without an inner tooth, exteriorly with a deep notch near the base Scape slightly curved apically antennal joints 3 and 4 about equal in length, third gradually tapering to the broad apex, fourth emarginate at the base beneath Antennal fovea rather large, not bounded by a transverse carina above Malar space distinct eyes oval shining without facets Head with rather close punctures, the punctures of the cheeks smaller and more widely separated Thorax with the anterior angles sharp but hardly dentate, the anterior sides parallel, posteriorly they narrow inwardly Dorsulum and sides of the posterior face coarsely granular, the middle part of the posterior face is smooth and shining The femora slightly rounded out beneath, the intermediate tibiæ are shorter than their femora the hind basi tarsus is hardly as long as the two following joints First and second abdominal segments are sessile The sides and the apical part of the second dorsal segment with small distinct, sparse punctures, in the basal middle the punctures are close, elongate and sometimes confluent Pygidium distinctly margined at the sides, smooth, shining, very indistinctly sculptured Color Head and thorax rufo-ferruginous, legs, antennæ and abdomen black or piceous Head, thorax and dorsal segment with long black hairs, pleuræ with some white hairs intermixed, legs and abdomen except the second dorsal segment with long sparse white hair, apical margins of the abdominal segments 2 and 3 with a dense fringe of short white hair

Habitat—One female specimen collected near the top of Flagstaff Hill, Boulder, Colorado, August 1, 1908, alt about 6,000 feet (T. D A Cockerell)

This species belongs to the group *anthrophoræ* of Fox and runs to *sanctæfeæ* Ckll and Fox (New Mexico), but the antennæ are not ferruginous throughout, the legs are darker, the second dorsal segment does not have the punctures evenly separated, and the hair of the head, thorax and second dorsal segment is black, not white

Mutilla (Timulla) briaxus Blake

Female—Length 9 mm Mandibles rather robust, short, with a small tooth within Antennal fovea rather large, shining, bounded above by a transverse carina Antennæ robust, tapering beyond the middle, third joint a little more than twice as long as the fourth, broader at the apex Eyes elongate oval, maler space rather large Head about the same width as the thorax, closely, rather coarsely punctured, some of the punctures elongate Thorax elongate, narrowed in the middle posterior face slightly oblique, seen from the side and behind the margin is serrate Thorax above and the posterior face with coarse, elongate punctures, pleuræ smooth, shining, almost impunctate Legs rather slender, posterior tibiæ with rather long spines First abdominal segment broadly sessile with the second, second segment rather small, sometimes elongate, punctures, punctures sparser on the venter and in the middle above Pygidium fairly well defined, irregularly granular Color ferruginous, eyes flagellum, legs, first and apical margins of dorsal segments three, four and five, *black* head, thorax and second dorsal abdominal segment with sparse appressed golden pubescence, entire insect sparsely clothed with long hair, varying from gray on the legs and abdomen, to reddish on the head and tarsi to black on the prothorax, apical margins of the second, third and fourth segments with dense white hair

Habitat—Boulder, Colo, May, 1908 (T D A Cockerell)

Close to *dubitatas* Smith, but when compared with a specimen from Columbus, Texas, (Wickham), determined by Mr Melander, the following differences were noted the mandibles are shorter and more robust, the femora are more cylindrical, the pygidium is not striated, the appressed pubescence is not so dense This is not closely related to *montivaga*, which has been placed in *Timulla* Ashm (Tran Am Ent Soc xxxii, July, 1906, p 187), differing markedly in the shape of the eyes In my opinion *montivaga* should not be placed in the group *Timulla*, as the type of it (*Timulla*) has oval eyes, while *montivaga* has round eyes

It has been suggested (Fox, Tran Am Ant Soc xxv, p 270) that *hexagona* Say is the male of *dubitata* Sm Males which are very close to *hexagona* have been taken in the same locality and in the same season as the above female Thinking that the above female belongs to these males, and the males are Blake's *briaxus*, and the above female is distinct from *dubitata*, I consider *briaxus* as a good species They differ from *hexagona* in having the hair of the abdomen black and having only the apex of the scape with white hair

Smaller females with pubescence of the abdomen black, and bearing much the same relation to *dubitatiformis* that the variety *ornativentris* does to *dubitata* have been found at Boulder They are known at once from *ornativentris* by the granular pygidium (in *ornativentris* the pygidium, at least at the base, is longitudinally striated)

Ephuta boulderensis n sp

Male—Length 8 mm Head round, not as wide as the thorax, covered with large, rather close punctures, the sculpture not very distinct because the close pubescence hides it Mandibles with three small apical teeth Eyes round, prominent, facets small, but distinct Antennæ reaching beyond the tegulæ third joint shorter than the fourth, apical joint longer than the preceeding one, acute at the apex Prothorax and dorsulum with rather large close punctures mesopleuræ similarly sculptured, metathorax with large, shallow, sometimes confluent punctures Radial cell truncate, third cubital cell not clearly defined, first and second tran cu almost meeting on the radius First abdominal segment small nodose at the apex, its ventral carina with a tooth both anteriorly and posteriorly, the anterior one the stronger Second abdominal segment with deep slightly elongate punctures Spines at the apex of the abdomen rather long, not strongly tapering Head, antennæ, pro and mesothorax, and legs black, metathorax and abdomen ferruginous or rufo-piceous Head and upper part of the pro- and mesothorax with matted and erect gray pubescence mandibles, lower part of the pleuræ, legs and abdomen with long black hair, at the tip of the abdomen is a bunch of glistening, fulvous hair Wings brownish black venation black

Habitat—Boulder, Colorado, August 4, 1908 (S A Rohwer)

The tridentate mandibles would run this into Fox's group *asopus*, but it lacks the ventral carina on the second segment which that group has. Of the species in that group it is most closely related to *asopus* Cress., but is at once distinguished from that species by its smaller size and the black hair of the second segment. Disregarding the mandibles, it should, I think, be placed in group *occidentalis*. If sought for in this group it would run to *bioculata* Cress., but differs from that species in the entirely ferruginous first and second abdominal segments, the larger punctures of the second segment. The presence of the facets on the eyes seem to exclude it from the *occidentalis* group. Perhaps the group *asopus* should be made to include this species.

Proctotrypes florissantensis n. sp.

Female—Length of body 4 mm.; length of stylus 1.5 mm. Clypeus produced into a broad, rounded lobe; eyes large, ovate; palpi long, fourth joint the longest. Head smooth, polished; a distinct furrow from the anterior ocellus Metanotum shining, covered with short, white hair. Mesopleuræ finely transversely striated. Metathorax coarsely rugose; a distinct median carina; sloping off gradually posterior to some distance beyond the attachment of the posterior coxæ. Posterior femora somewhat enlarged at apex; a little shorter than the posterior tibiæ. Discoidal nervures visible as fuscous streaks. Antennæ simple; third and fourth joints equal. Abdomen and stylus smooth, highly polished. Black, mandibles, tegulæ, legs beyond the coxæ (femora somewhat piceous), small spot at base of abdomen above, and stylus *rufous;* palpi brownish; venter of abdomen ferruginous. Wings slightly dusky-hyaline, iridescent; stigma and nervures dark fuscous.

Male.—Length 5 mm. The male differs from the female in having the lateral ocelli on small tubercles, having a large rufous spot on the abdomen above, and the wings somewhat clearer. The antennæ are simple; the carina of the metathorax is quite distinct.

Habitat.—Florissant, Colo., ♀, June 22, 1908 (S. A. Rohwer), ♂, June 13, 1908 (T. D. A. Cockerell), ♂, June 28, 1908 (S. A. Rohwer).

In Ashmead's monograph of the N. Am. Proctotrepidæ (Bul. 45, U. S. Nat. Mus.) *P. florissantensis* run out between *P. californicus* Holmgr. and *P. obliquus* Ashm. It differs from both in having the rufous spot on the dorsal, basal part of the abdomen, and from *P. californicus* in having the antennæ of the ♂ simple. From *P. obliquus* it may be known by the central carina on the metathorax.

A ♀, June 26, 1907 (S A Rohwer), has the legs somewhat lighter color and the apex of the abdomen is the same color as the legs The basal rufous spot of the abdomen is not so distinct

Lysiphlebus crawfordi n sp

Female—Length 2 mm Antennæ 13 jointed, rather sparsely covered with short, straight hair, second joint globose, shorter than the first, and about twice as wide as the following one, third joint a very little shorter than the fourth, apical joint (22 u) almost or quite twice as long as the preceeding one, which is 11 u , apical joint acute at the apex Maxillary palpi three jointed, joints cylindrical, apical joint much longer than the preceding one Labial palpi three-jointed, short, joints subglobose Two spurs on middle tibiæ about equal length, basal joint of middle tarsi not quite as long as the two following united apical joint (10 u) not quite as long as the two preceding united Spur of hind tibiæ rather strongly curved basal joint of hind tarsi longer than the two following united but not as long as 2, 3 and 4 apical joint (10 u) not much longer than the preceding joint Tibiæ apically and all the tarsi joints with short, straight hairs Claws simple, pulvilli large Venation in dry specimens normal for genus *Lysiphlebus* In specimens mounted in balsam the stigma and radius become very indistinct, in and the transverse cubitus is wanting The specimens in balsam run to *Lipolexis* Forster Abdomen elongate

Color or dry specimens Black not very shiny mandibles, fore legs entirely, four posterior legs below basal part of coxæ, and in some specimens the entire legs brownish yellow The hind legs are some times very strongly brownish especially the femora and tibiæ Wings hyaline, slightly iridescent basal nervures pale brown, stigma and radius white

Color of specimens mounted in balsam Head thorax and antennæ dark brown abdomen and legs much lighter brown entire anterior legs, coxæ, trochanters, knees and tarsi flavous Wings hyaline, basal nervures pale brown, stigma and radius very faint whitish

Male—Length 2 mm Antennæ sixteen jointed apical joint the same length as the preceding, although it appears somewhat shorter, length 10 u , apical joint is set close to the fifteenth, not well separated as the preceding ones are, but nevertheless quite distinct, tapering for the greater part of its length to a rather acute apex Apical joint of the middle tarsi 9 u , distinctly longer than the preceding one Apical joint of the hind tarsi 10 u

Color as in female

Habitat—Breed from *Myzus persicæ* collected at Phœnix Arizona, March, 1908, by J E Coit The aphid is said to infest all kinds of plants

In Ashmead's table for the species of *Lysiphlebus* (Proc 760 of U S Nat Mus 1888, p 662 and 663) the female runs to *L. citraphis* Ashm., but may be known from this at once by the entirely black antennæ. Some of the females which have lighter legs might be said to go to *eragrostaphidis* Ashm., or to *coquilletti* Ashm., but they may be known at once from these species by the pallid stigma and other characters. The male in Dr. Ashmead's table (loc. cit.) runs out because the antennæ are sixteen-jointed.

The specimens mounted in balsam run to the genus *Lipolexis* Forster. In this genus they go to *chenopodiaphidis* Ashm. The female may be separated from this species by the black abdomen and the darker trochanters. The male may be separated by having the apical joint of the middle tarsi longer than the preceeding. Males may be found which will go to *salicaphidis* Ashm., if so they may be separated from this species by the white stigma.

This spring, when Prof. T. D. A. Cockerell and I worked on this Braconid, Prof. Cockerell wrote to Dr. L. O. Howard and asked if *Lipolexis chenopdiaphidis* Ashm. could not be a *Lysiphlebus*. If this were true it was thought that perhaps our species was *chenopodiaphidis*; however, it may be separated from this species by the character given above.

Mr. J. C. Crawford, through the kindness of Dr. Howard, examined the type of *Lipolexis chenodiaphidis* and reports the following:

"The type specimens of *Lipolexis chenopodiaphidis* do not show the transverse cubital nervure; the ♀ examined by Ashmead shows 13-jointed antennæ, while another shows 14; the ♂ has 16, but in one specimen has only 15."

Unless there are characters other than the number of joints to the antennæ it would seem, from the above, that the three species assigned to the genus *Lipolexis* are the same. Considering the number of joints to the antennæ in both sexes, *Lysiphlebus crawfordii* Roh. forms a new group, in which the male has three more joints than the female. As a rule the male only has two more.

I regret to state that the only male in my possession was, by accident, badly broken. The above description was drawn up before this happened. Types in the author's collection. Specimens were also sent to the U. S. National Museum before this description was drawn up.

The Robber-flies of America, north of Mexico, belonging to the Subfamilies Leptogastrinæ and Dasypogoninæ.

BY ERNEST A. BACK, PH.D.
OF THE
MASSACHUSETTS AGRICULTURAL COLLEGE, AMHERST, MASS.

INTRODUCTION.

This contribution to our knowledge of the Asilidæ (Robber-flies) of America, north of Mexico, is the result of several years of more or less interrupted study at the Insectary of the Entomological Department of the Massachusetts Agricultural College, under the direct supervision of Doctors Charles H. and Henry T. Fernald, and forms a portion of a thesis for the degree of doctor of philosophy. It is an attempt to place before those interested in the Asilids of our country a single paper by the aid of which the identification of these interesting flies may be greatly facilitated.

The writer first became interested in the Asilidæ about six years ago when, on the departure of Mr. Geo. F. Babb, who had been working upon this family, the work was placed in his hands. Mr. Babb's original plan was a paper on the genus *Asilus*, sensu lat., and as a foundation, he had just completed the translation of the description of all the Asilidæ then known north of Mexico, when he was called away from the college. Through the lack of time and material in *Asilus*, it was decided to limit the work of Leptogastrinæ and Dasypogoninæ of America, north of Mexico, although the unique Cuban genus *Sphageus* and the Mexican *Archilestris*, have been included.

There are herein given the description of one hundred and ninety-four species and thirty-six genera, exclusive of those unrecognizable species referred by the older writers to the genus *Dasypogon*, which will be listed at the end of the paper. Of these, one genus, *Willistonia*, and twenty species are new. So far as has been possible, the type of each genus, and the location of the specific types, has been given at the end of each generic and specific description respectively. Whenever it was not possible to obtain material of species, translations from the original description, were they in other than the English tongue, have been used, or were such in English, direct copies made; but in either case full credit given. In many instances, such as the most excellent and reliable descriptions of Baron Osten Sacken and Dr. S. W. Williston, the writer has preferred, even when he has had an abundance of material before him, to use the original description in quotation marks rather than attempt the most difficult task of improving them; such, for example, as Baron Osten Sacken's description of many *Cyrtopogon* species, specimens of which have not been taken since the original descriptions were made. *No description, however, of the type material of either Loew or Osten Sacken, and of most of that of Williston, has been used until it had been previously compared with the type itself*, a fact which should make the description more reliable.

In the preparation of this paper, the valuable Loew and Osten Sacken type collections, the translations above referred to, the most praiseworthy work of Dr. S. W. Williston, and Aldrich's Catalogue have proved indispensable. Up to this time almost no illustrations of North American Dasypogoninæ have been published except the line drawings of Dr. Williston in the Transactions American Entomological Society of Philadelphia, and a half-tone plate by Dr. L. O. Howard in his Insect Book, Plate XIX. In this paper, each genus, with few exceptions, has been illustrated by an enlarged photograph of one or more species, and it is hoped that these will be of no small aid in the identification of genera.

The division of the family into four subfamilies, Leptogastrinæ, Dasypogoninæ, Laphrinæ, and Asilinæ has been retained. The table of genera is based upon that of Dr. Williston in the first edition of his Manual of North American Diptera, but has been revised in several ways. It is hoped that the reference in the table to the illustrations of the different genera will be of assistance. Keys to the species of the genera have been added whenever it has been feasible. Some trouble will be experienced in the identification of the species of

Deromyia, *Stenopogon*, and *Cophura*, especially of the last two, due, in the one case to variation, in the other to an assemblage of what the writer believes to be a somewhat heterogeneous collection of species

Terms used are fully explained in Smith's Glossary of Entomology The Schiner system of nomenclature for the wing venation has been used

The writer wishes to express his gratitude to Doctors Charles H and Henry T Fernald for the many ways in which they aided and guided him in his work, to Prof C W Johnson for his continued interest and assistance for the start, to Dr S W Williston for valuable suggestions and that liberality so encouraging to a new worker, to Mr D. W Coquillett for assistance in very many ways, to Mr Samuel Henshaw for the privilege of several times studying the Loew and Osten Sacken type collections in his charge at the Museum of Comparative Zoology of Harvard University, and to Dr L O Howard, Dr H Skinner, Mr W Beutenmuller, and Mr C Schaeffer for the privilege of study at the National Museum, American Entomological Society of Philadelphia, American Museum, and the Brooklyn Institute, respectively The writer also wishes to express his obligations to those who have made this paper more complete by the gift and loan of type and other material Although this material has been secured through Dr H T Fernald, who has kindly assumed all responsibility, as to the one most benefitted, I wish to thank most heartily, besides all the above-mentioned gentlemen, Dr. F H Snow, Dr E P Felt, Prof R A Cooley, Prof J M. Aldrich, Prof F Sherman, Jr , Prof C P Gillette, and many others who have been of assistance in a similar way

SYSTEMATIC WORK

Linnaeus in the tenth edition of his Systema Naturae placed all the Asilidæ in the genus *Asilus* Scopoli, in 1763, erected the genus *Erax*, and in 1803 Meigen, in Illigers Magazin, divided the Asilidæ into the genera *Dasypogon*, *Leptogaster*, *Laphria*, and *Asilus L* The *Asilus* of Meigen's classification included *Erax* of Scopoli This Meigen classification was accepted by Fabricus, Wiedemann, Say, Macquart, Walker, and only a few genera were added up to the time when Loew began his memorable work upon this family.

Loew laid the real foundation for thorough work upon the Asilidæ in his monograph "Ueber die Europàischen Raubfliegern (Diptera Asilica*)," supplemented by him in many later publications, especially in the "Bemerkungen über die Familie de Asiliden**" and "Die Dipteren Fauna Suda Africas,†" Schiner's "Fauna Austriaca,‡" "Die Wiedemann's chen Asiliden,||" and "Neue order wenig bekannte Asiliden des K. zool. Hofcabinits in Wien,§" are as a whole rendered invaluable as a survey of all the genera of Asilidæ down to 1866, and for the analytical keys for their identification.

The foregoing mentioned works deal wholly or largely with species foreign to this country. While Say, the first American to work upon this family, and several foreign writers, described a few species from this country, Loew and Osten Sacken were the greatest contributors to our present knowledge of the Leptogastrinæ and Dasypogoninæ, up to the time when Dr. Williston began his studies. Although Osten Sacken has described many less species than Loew, his untiring efforts in getting together collections from this country for Loew to study should not be undervalued. It is to the credit of his foresight that the types of Loew's North American species were deposited in the Museum of Comparative Zoology. Loew published his works chiefly between the years 1862-1874. Perhaps one can get the best idea of the amount of work done by these two gentlemen from the fact that at the time Osten Sacken published his Catalogue in 1878, of the 115 species from the territory covered by this paper, Loew had described 62.6%, and Osten Sacken 19.1%; thus making a total of 81.7% as the result of their labors. When we consider that the types of all these species are now at the Museum of Comparative

---

*Linn. Ent., Vol. II, III, IV; Suppl. in Vol. V (1847–1851).

**Berlin, 1851.

†Berlin, 1860.

‡1862–64.

||Verh. Zool. Bot. Ges., 1866.

§Verh. Zool. Bot. Ges , 1867.

Zoology, together with 11.3% additional species of other authors recognized by these gentlemen, we can judge how valuable a service Osten Sacken rendered American dipterologists in securing the return to this country of the material he sent to Loew for study. Of the genera for the same time and territory, 72.4% were erected by Loew, and 27.6% by Meigen, Wiedemann, Macquart, Jaennicke, and Phillipi.

Of American writers Dr. Williston stands forth as the first to do thorough systematic work upon the Asilids, and his publications in the Transactions of the American Entomological Society and in his Manual, are of great value, and have been very useful in the preparation of this paper. The work of Mr. D. W. Coquillett and Prof. C. W. Johnson, while given more to description of new forms, is indispensable. These three gentlemen have added nearly sixty new species and five new genera; of the latter, three are those of Dr. Williston, and one each of Mr. Coquillett and Prof. Johnson.

COLLECTIONS.

The best collection of Leptogastrinæ and Dasypogoninæ is the type collection of Loew and Osten Sacken now at the Museum of Comparative Zoology of Harvard University. The specimens, with few exceptions, are in good condition. The collections of the National Museum and of the American Entomological Society of Philadelphia are very good and growing, while those of the American Museum and Brooklyn Institute, though at present less in extent, contain valuable material. The collection of the Massachusetts Agricultural College contains several types, homotypes, and metatypes. The writer has never had the privilege of seeing the collection of the University of Kansas, but as this contains all the material worked on by Dr. Williston, together with his numerous types, it cannot fail to be most valuable. Of private collections, that of Prof. C. W. Johnson, Curator of the Boston Society of Natural History, is very good, and for systematic study takes a very high rank. Besides these, the collections of the New York State Museum, and of the Colorado and North Carolina Experiment Station, are worthy of mention.

CREATION OF NEW SPECIES.

It goes without saying that great care should be exercised in the creation of new species. This is especially so in the genera *Deromyia*, *Stenopogon*, and *Cyrtopogon*. There will always be in any large collection of the genera specimens that cannot be identified with any degree of certainty, either because of a limited amount of material or on account of poor condition. For the proper identification both sexes in good condition should be had and pains should be taken in collecting to carefully label all species, and to keep the sexes together. Descriptions of new species, based on a single or several females, especially when in poor condition and belonging to *Stenopogon* and *Crytopogon*, are an abomination to future work. It would be far better to allow the material to wait until more specimens are at hand, even if one has to forego the pleasure of creating new species. Exceptions to this are found in forms so striking from the standpoint of size, coloration or habitat that they would be recognized easily in any collection. No one should attempt to describe new species in these genera without a good series of the already described species before him.

CHARACTERS OF THE ASILIDÆ.

Predaceous species of moderate to large size, though sometimes very small, usually more or less elongated in form, in some cases very hairy, almost always bristly, the bristles usually conspicuously strong. Head flattened, usually broader than high, though sometimes quite narrow and when so less flattened, separated from the thorax by a freely movable neck. Vertex usually distinctly depressed between the eyes, in a few instances scarcely so; eyes in both sexes separated, rarely nearly contiguous above; three ocelli present, situated on a more or less rounded tubercle usually on the vertex. Antennæ porrect, simple, composed of three segments, the third usually more or less elongate, sometimes shorter and more oval, with or without a terminal style, the style sometimes thickened and forming one or two apparent antennal segments. Proboscis never elongate, firm and horny, adapted for piercing, directed forward or forward and downward; palpi composed of one or two segments; labella not fleshy. Abdomen composed of eight distinct segments, only rarely apparently of six; the hypopygium usually prominent. Legs strong, bristly, of moderate length, rarely somewhat elongated, tarsi usually strong; empodia bristle-like, the pulvilli rarely vestigial. Tegulæ small. Wing when at rest lying parallel over the abdomen; basal cells long; two or three submarginal, and five, rarely four, posterior cells present; first and fourth posterior cells and the anal cell open or closed.

EXTERNAL ANATOMY.

Head.—The hypognathous head is moderately large, usually broader than high, and quite disciform but sometimes as in *Stenopogon* and *Ospriocerus* much thicker and about as high as broad. The large compound eyes extend from the top of the head to the oral margin and occupy from two-thirds to nearly all (*Leptogaster*) the anterior aspect of the head, and extend over the sides to the occiput so that the cheeks are greatly, or quite, reduced. The eyes may be equidistant throughout, or widely divergent above and below (*Townsendia* and *Stichopogon*), more or less contiguous above only in *Plesiomma*. The faucets may be scarcely or considerably larger in the central region adjoining the facial margin.

The face in profile may be slightly convex (*Habropogon*), straight and hardly perceptible (*Taracticus*), convex (*Microstylum*), but very frequently more or less gibbose, the gibbosity extending evenly up in the front (*Ceraturgis*), greatest in the middle (*Myelaphus*), or confined to the oral margin (*Psilocurus*); an antennal protuberance (*Dioctria*, *Myelaphus*, and *Dicolonus*) sometimes occurs to make the profile more complex. The face varies in width from proportionately very broad (*Lyphystia* and *Holcocephala*) to very narrow (*Leptogaster*); the facial orbits may be parallel or nearly so (*Taracticus*) or divergent below (*Stichopogon*). The oral margin, the lower edge of the face, is nearly straight or well arched, dome shaped, according to the absence or presence of a facial convexity.

The front, like the face, presents much variation. It may be very narrow and of equal width (*Leptogaster*), very much widened above (*Townsendia*), or strikingly narrowed above so that the eyes approach a condition of contiguity found in no genus but *Plesiomma*. In *Townsendia*, the front and vertex occupy a large portion of the upper part of the head. The vertex is usually well depressed and the ocellar tubercle, bearing the three ocelli, quite prominent.

The mouth parts form a stout, firm, horny proboscis without fleshy labella at the tip. It may be very short (*Holcocephala*), or comparatively long (*Microstylum*). The palpi are of variable length but never prominent, single jointed in the Leptogastrinæ and Asilinæ, two jointed in the Dasypogoninæ and Laphrinæ.

The antennæ present many characters of generic and specific importance; of these one may obtain a fair idea by referring to Plates III and IV. The variations in size, shape, and clothing, are too numerous to receive special attention at this point. In general, the antennæ are divided into three distinct segments; the third segment distally with or without a terminal style or bristle. The two basal segments are always comparatively short, cylindrical, sometimes more rounded; the third is usually longer than the basal two taken together, and presents a considerable variety of form. The style present in nearly all the genera, may be distinctly separated from the third segment, or hardly so (*Holcocephala* and *Dioctria*); it may be long and slender (*Holopogon*), stout and short (*Psilocurus*), or greatly elongated and apparently forming distinct antennal segments (*Ceraturgus*). With few exceptions, under the compound microscope, the style will be found to be two-jointed, usually the basal segment being very short and the second segment long and slender (*Nicocles*), or the opposite may be true (*Stichopogon*), while again both segments may be short and stout (*Laphystia*). The terminal segment of the style may bear a terminal bristle of its own (*Laphystia*) or a lateral bristle (*Ceraturgopsis*).

The head, as the rest of the body, is variously clothed with bristles and pile, and the ground color is more often obscured by a bloom upon the face, front and occiput. The face may be bare except for bristles or hairs upon the oral margin, called the mystax; or it may be densely pilose as in a species of *Cyrtopogon*, and every gradation between these conditions may be found. The clothing between the mystax and the antennæ is called the vibrissæ. The front may be pilose as in species of *Holopogon*, but more usually bare except for pile or bristles along the orbits and upon the ocellar tubercle. The occiput is variously clothed with bristles and hairs. The bristles along the orbits on the occiput are called the occipito-orbital bristles. The lower outer orbits of the eyes and the base of the proboscis may be variously clothed with pile and stiff hairs.

Thorax (Plate II, fig. 2).—The mesothorax is by far the most prominent part of the thorax, the pro- and metathorax being greatly reduced. The prothorax is naturally divided into two parts, the slender more or less elongated portion which articulates with the head and which may be termed the neck, and the larger posterior portion articulating with the mesothorax which may be called the collar. The neck joins the head at the center of the occiput which permits a very free movement of the latter. The collar is distinctly separated from the mesothorax behind by a suture, less distinctly so on the sides; the anterior margin of the pronotum is usually strongly elevated and well clothed with bristles or hairs. The prothorax in such species as belong to the genera *Holopogon* and *Holcocephala* is greatly reduced.

The mesonotum occupies the greater part of the dorsum of the thorax, and is usually well arched, reaching its greatest development in this respect in *Holcocephala*. It extends back to and includes the scutellum from which it is separated by a suture. On either side, before the insertion of the wings is a suture extending upward, being nearly or quite obsolete on the dorsum, the transverse suture. The anterior superior angles are called humeri; and the posterior superior angles, to the side and above the scutellum, are called in this paper, the posterior callosities. The mesonotum is separated from the pleuræ by the dorso-pleural suture. From before the insertion of the wings running downward is a more or less indistinct suture, bending to the rear on the lower portion of the pleura, the mesopleural suture, dividing the mesopleura and the sternopleura before, from the pteropleura and the metasternum behind. About midway between the dorsopleural suture and the coxæ, the mesopleural suture gives off a branch suture running forward, the sternopleural suture, separating the mesopleura above, from the sternopleura below. Immediately above the halteres and below the scutellum is a rounded area, the metanotum, usually pruinose; before the halters there is an ill defined area, somewhat swollen, and often with a fan-like fringe of hair or bristles, the hypopleura. Between the hypopleura and the mesopleura, and between the insertion of the wings and an indistinct backward directed branch of the mesopleural suture is the pteropleura. The metasternum and the metapleura are ill defined and occupy the remainder of the lower posterior portion of the thorax, and are not referred to in the descriptions.

The clothing of the thorax presents too numerous variation to receive full attention here. In species of *Holcocephala* (Pl. XI, figs. 5 and 6) it is without bristles or noticeable pile, in some species of *Cyrtopogon* (Pl. VIII, fig. 1) it is rather densely pilose, but in a larger percentage of species there will be found an irregular line of either well-developed bristles or hairs extending from the dorsopleural suture before the insertion of the wings backward and upward to above the posterior callosities, on the posterior callosities, posterior margin of the scutellum, and sometimes on the humeral angle as well. Usually when these bristles reach their fullest development, as in species of *Ospriocerus*, *Microstylum*, and *Deromyia*, the mesonotum is clothed with very short, more or less microscopic, stiff hair (Pl. VII, fig. 5) and the prothorax is strongly armed with bristles. This is not always the case. In species of *Stenopogon* (Pl. XII, figs. 1 to 3) there may be a great development of bristles and hairs upon the lateral and posterior portions; in *Lestomyia* the bristles are arranged in four rows running longitudinally along the mesonotum from the pronotum to the scutellum; again, the pile may be almost scale-like and strongly appressed as in species of *Ablautus*, or it may, as in *Cophura fallei* and *Stenopogon jubatus*, form an erect crest extending from the pronotum to the scutellum along the middle line The pleura, in the more bristly species, is nearly destitute of pile and bristles, however, bristles or hair, or both, are found usually upon the hypopleura, and frequently varying amounts of pile, never bristles, upon the meso- and sternopleura The scutellum may be wholly bare, with bristles on the posterior margin, wholly pilose, or with both pile and bristles The ground color of the thorax, as is often that of the abdomen, is more or less obscured by the presence of a bloom which plays an important part in descriptive work

Abdomen—The abdomen is composed of eight segments and is firmly united to the metathorax by its full width, it presents many variations in form, being usually long and slender (*Deromyia* and *Microstylum*), sometimes much shorter and broader (*Pycnopogon* and *Laphystia*), in most cases slightly tapering toward the tip, but in the male of *Nicocles* distinctly expanding from the base of the third segment to the tip of the fifth, and distinctly flattened dorso ventrally distally The eight segments are easily discernible in most cases, the seventh and eighth in the male *Nicocles* not apparent from above, but from the side are seen partially retracted within the sixth, in *Laphystia* and *Psilocurus* the terminal segments are apt to be retracted and are seen with difficulty The second segment, near its base, bears a distinct groove bordered by two rows of punctate spots which at first glance appear to divide the segment The male *hypopygium* is of little value at present in the separation of genera, in most genera the several parts are closely applied to each other, but in *Ceraturgus*, *Ceraturgopsis* and *Sphageus*, they do not meet, but are so separated as to give the end of the abdomen a "broken-off" appearance The female ovipositor is usually armed with a terminal circlet of spines, in *Laphystia*, *Tricles* and *Psilocurus* these are not apparent The abdomen is variously clothed with pile and bristles, the pile may be microscopic, leaving the surface apparently bare to the unaided eye, or it may be very dense and sometimes in tufts as in some *Cyrtopogon* species; the bristles when present are usually confined to a small area on the sides of the first, or first and second segments, though sometimes present on the posterior margin of the first segment, but in the *Laphystia* and *Psilocurus* bristles may be found on the sides of the following segments as well, although such bristles are usually less prominent and shorter.

Wings.—The wings are quite large, usually strong, and while usually rather narrow are sometimes much broader, as in *Holcocephala* species; in length they usually equal that of the abdomen, though in many species of *Stenopogon* are considerably shorter. In color they vary from pure hyaline to deep black, sometimes spotted, and again wholly or in part milky white.

The Schiner system of vein and cell nomenclature has been adopted. For the distribution of the veins and cells see Pl. II, Fig. 1, and compare with wings shown on the half-tone plates following. Five posterior cells are usually present, but in *Townsendia*, the anterior intercalary vein is lacking, thus reducing the number to four. The marginal cell is always open, but in *Laphystia* and *Tricilis* is so nearly closed that question has arisen in the past whether these genera do not more properly belong to the Laphrinæ. Dr. Fr. Hermann,* by a series of careful drawings, has shown that this cell is open to considerable variation and has clearly demonstrated the intermediate position of these genera between Dasypogoninæ and Laphrinæ. This view has been held by Dr. Williston. The submarginal cells are always open, as also are the posterior cells with the exception of the first and fourth, which may be open or closed; the anal cell may be either closed or narrowly open. The closure of the first posterior, and often the fourth also, is a matter of considerable variation, even within the same species, or even the same specimen. The fourth posterior seems more stable in this respect, but in such a genus as *Saropogon*, is found to vary to a considerable extent. Sometimes the upper surface of the wings, especially in *Deromyia*, bears areas of microscopic pubes which have been used occasionally in the separation of species. The alula is comparatively small.

---

* Beitrag zur Keuntris der Asiliden, Ber. Ent. Zeit., Band L. '05; p. 31.

Legs —The legs are comparatively long and stout, but show variation in robustness in different genera As a rule they are well armed with bristles and pile, too variously so to receive attention in this regard here In some of the more delicate species the legs are clothed with hair-like bristles, but in all of the larger, strong flying species, the bristles are stout and strong The coxæ are always well developed and their basal articulations with the body are close together, the fore pair are ordinarily heavily clothed with bristles or hair on the anterior side, the posterior pairs less so on the outer and lower sides The trochanters are easily distinguished but very small The three pairs of legs vary little from each other in general size and shape, the posterior femora are often slightly more robust, and in some species of *Leptogaster* often extremely attenuated proximally and distally prominently swollen, characteristics not possessed by the anterior pairs or by the usual Asilid femur The tibiæ are of nearly equal length with the femora, for the most part slender but stout, but the hind pair may be characteristically swollen as in species of *Holopogon* and *Holcocephala*, and the fore pair in such genera as *Deromyia*, armed on the inner side with a terminal claw-like spur (Pl II, fig 3, Pl VI, fig 3) The tips of the middle tibiæ are usually armed with bristles directed downward (Pl II, fig 4) In *Chrysoceria* and *Callinicus* they possess two prominent bristles not only directed downward, but distinctly inward as well (Pl II, fig, 5 , Pl VI, fig 6)

There are five tarsal segments, the first noticeably longer than the fifth, and called the metatarsus In species of *Holopogon* and *Holcocephala*, the hind metatarsus is unusually enlarged The fore tarsi are sometimes noticeably elongate as in several species of *Cyrtopogon*, the last tarsal segment bears two strong curved claws, between which there is a well developed bristles-like spine, the empodium, except in two species of *Leptogaster* where it is vestigial The two pulvilli, leaf-like appendages beneath each claw, are well developed, about three-fourths as long as the claws, and usually of a pale color, they are vestigial in the species of *Ablautus* and *Leptogaster*

SECONDARY SEXUAL CHARACTERS.

Striking examples of secondary sexual characters in the form of beautifying pile and bristles appear in male of the genera *Ablautus*, *Cyrtopogon*, and *Heteropogon*. So far as is known, the fore tarsi of all the males belonging to *Ablautus* are clothed above with short appressed white pile and on the sides with longer black bristles. The males of several species of *Cyrtopogon* and *Heteropogon*, in addition to similar pile upon their fore tarsi, possess brushes on their middle legs. In *Cyrtopogon*, this brush (Pl. VIII, fig. 1) is formed of black bristles arranged on the last two tarsal segments; in *Heteropogon*, of black and white bristles on the anterior side of the tibiæ above the middle (Pl. X, fig. 5). The same males of *Heteropogon* are still further distinguished by a patch of black bristles in the anterior side of the middle femora.

SEXUAL COLORATION.

Difference in coloration between the sexes is not very general among species included in this paper. In *Saropogon* where the male is black, the female shows a decided tendency toward reddish. In the cases of *Saropogon combustus* Loew,. and *abbreviatus* Johnson, this difference leads to the creation of new species for the female. The females of *Dizonias* are strikingly different in coloration from their males, in that they are reddish with golden abdominal bands, while the males, varying from black to black and red, have white pruinose abdominal bands. The male of *Deromyia discolor* Loew is black, the female reddish yellow. In some species in which the male has spotted wings as *Cyrtopogon bimacula* Walker, the female does not possess these spots, or at the most, only traces of them. Females, whose males possess wings tinged with milky whiteness, either throughout, as *Microsylum galactodes* Loew, or in the anal angle, as *Stenopogon californiæ* Walker and *Dioctria albius* Walker, have wings showing no trace of this color.

TABLE OF SUBFAMILIES.

Palpi with one segment; antennæ with a slender terminal style 2.

Palpi with two segments; antennæ with or without a thickened terminal style, very rarely with a terminal arista 3

Marginal cell of wing open; very slender species LEPTOGASTRINÆ.

Marginal cell of wing closed, less slender or robust species. ASILINÆ.

Marginal cell of wing open or rarely closed at extreme tip. DASYPOGONINÆ.

Marginal cell of wing closed LAPHRINÆ.

LEPTOGASTRINÆ and DASYPOGONINÆ.

TABLE OF GENERA.

1. Fore tibiæ with a terminal claw-like spur (Pl II, fig. 3) 32

Fore tibiæ without a terminal claw-like spur . 2

2 Four posterior cells present, front very broad above; very small species . **Townsendia.**

Five posterior cells present (Pl. II, fig. 1) 3

3. Pulvilli vestigial or wanting 4

Pulvilli normal 5

4. Third segment of antennæ with an arista or aristiform style; abdomen unusually long and slender (Pl VI, fig. 1). **Leptogaster.**

Third segment of antennæ with a short thickened style; abdomen not unusually long or slender (Pl XII, fig. 4) **Ablautus.**

5. Head narrow, about as high as broad (Pl. V, fig 3); face narrow above, broader and swollen below, in large part covered with hair; medium to large elongate species 6

Head very obviously broader than high (Pl V, fig 1) 7

6. Antennæ with a terminal style (Pl. III, figs 2, 3 and 4). **Stenopogon.**

Antennæ without a style*; third segment long; fourth posterior cell closed before the border of the wing; black species, with or without red or yellow on the abdomen (Pl VII, fig. 5; Pl. III, fig 7) **Ospriocerus.**

7. Fourth posterior cell closed before the borders of the wing (Pl. II, fig 1) 8.

Fourth posterior cell open, rarely nearly closed (Pl. X, fig. 5) 15.

8. Antennæ much elongate, apparently of five segments (Pl. IV, figs. 2 and 3) 16

Antennæ not elongate, composed of three segments, without a terminal style 9.

9. Face bare except on oral margin 10.

Face pilose or hairy, more convex . 11.

(*)*Ospriocerus diversus* Williston (Mexican) has a small style.

10. Anterior intercalary vein continuous or nearly so with the fourth vein, the last section of the latter oblique, closing or much narrowing the broad first posterior cell (Pl. VI, fig. 4). **Microstylum.**

Last section of the fourth vein continuous with the preceding section, the first posterior cell not closed or narrowed (Central and South America) **Archilestris.**

11. Abdomen cylindrical, elongate, male genetalia never meeting to close the anal opening; third antennal segment elongate..12.

Abdomen less elongate, more flattened with five or six white pruinose (interrupted or entire) cross bands 13.

12. Fore and middle femora on the underside with a patch of short, very stout bristles; third antennal segment without an excision on the inner distal half (Cuban) **Sphageus.**

Femora without such patches of bristles; third antennal segment with an excision on the inner half, near the proximal margin of the second and third abdominal segments with a white or yellowish pruinose emarginate cross band (Pl VII, fig. 2; Pl VIII, fig 3) **Dizonias.**

13. Scutellum with two or four stout bristles; veins at the outer ends of the discal and fourth posterior cells parallel or nearly so (Pl. IX, fig. 4) **Psilocurus.**

Scutellum without stout bristles; sometimes densely pilose or with weaker hair-like bristles forming a fringe on the posterior margin, or with both 14.

14 First posterior cell wide open, scarcely narrowed; face broad (Pl. V, fig 6), vertex deeply excavated, style of antennæ thick, distinctly two-jointed (Pl. IV, fig. 1) **Laphystia.**

First posterior cell closed or nearly so; face narrower, more protuberant below, scutellum with a fringe of weak bristles (Pl. IX, fig 3) **Tricilis.**

15 Antennæ elongate, composed of 5 segments; nearly bare species 16.

Antennæ less elongate or short, composed of three segments with or without a short or slender style 18.

16 First segment of antennæ about three times the length of the second, third elongate, the fourth and fifth of nearly equal length, third and fourth segments at tip with two lobes or processes, reaching to about the middle of the following segment (Pl. X, fig. 3) . **Myelaphus.**

First and second segments of nearly equal length, the third elongate, fourth short, the third and fourth segment not lobed at tip (Pl IV, figs. 2 and 3) .. 17.

17. Terminal segment of antennæ short, rounded, naked, on the outer side with a projection bearing a short, forward directed bristle (Pl. VII, fig. 6) **Ceraturgopsis.**

Terminal segment of antennæ elongate, and densely microscopically pubescent (Pl VII, fig 1) **Ceraturgus.**

18 Style of antennæ short, thick, obtuse, not easily distinguishable from the third segment, or if so forming apparent joints, antennæ more or less elongate 19

Style of antennæ small, more slender than the third segment, apparent, antennæ usually shorter 21

19 Nearly bare species, face flattened, bare, except below, small or rather small species, polished or metallic black, with narrow or cylindrical abdomen and large wings 20

Thickly or rather pilose species, the bristles few and hair-like, antennæ inserted on a convexity, the facial profile thence receding to the tubercle which is situated upon the lower part of the face, abdomen moderately stout, head narrow (Pl IX, fig 2) **Dicolonus.**

20 All the tibiæ and hind femora with short strong bristles (Pl VIII, fig 6) **Echthodopa.**

Hind femore without such bristles (Pl IX, fig 8) **Dioctria.**

21 Face distinctly swollen in profile, usually gibbose 22

Face flattened, or gently convex 23

22 Usually thickly pilose species (*), the gibbosity of the face reaches to the base of the antennæ anal cell usually open (Pl VIII, fig 1 IX, 1, 7, X, 6) **Cyrtopogon.**

Thinly pilose, more pruinose species, the convexity of the face confined to the lower part, anal cell usually closed (Pl IX, fig 6) **Lasiopogon.**

23 Bristles of mesonotum arranged in distinct rows, see **Metapogon.**

Bristles not so arranged 24

24 Abdomen elongate, front broad anteriorly, narrowed behind (Pl VI, fig 5) **Plesiomma.**

Front not narrowed behind 25

25 Hind tibiæ toward the tip and their metatarsi much thickened, 26

Hind tibiæ not, or but slightly, thickened toward the tip, their metatarsi not thickened 27

26 Head much broader than high, transverse "goggle-like" (Pl V, fig 4) abdomen short, wings large (Pl XI, fig 6) **Holocephala.**

Head only moderately broader than high, not at all spectacle-like in appearance (Pl V, figs 5) (Pl XI, figs 1, 2) **Holopogon.**

27 Style of antennæ long and slender, at least one-half as long as the slender, tapering, third segment, quite stout species 28

Style of antennæ not one-half as long as the third segment and stouter than above 29

(*) For exceptions, note Pl IX, fig 1, and Pl X, fig 6

28. Abdomen with thick recumbent pile above; very thickly pilose species, in typical species the pile forming dense tufts on the sides of the abdominal segments (not so in *P. cirrhatus*) (Pl. X, fig. 8) **Pycnopogon.**

Less pilose species (Pl X, figs. 4 and 5) . **Heteropogon.**

29 Front noticeably more widened above (Pl. V, fig. 7), middle tibiæ without two terminal inwardly directed spines (Pl. II, fig. 4) . 30.

Front not widened above; middle tibiæ with two terminal inwardly directed spines (Pl. II, fig. 5) 31

30 Front unusually widened above and much excavated; bristles of thoracic dorsum when well developed two or three on each side, one before the transverse suture, the other one or two on the posterior callosity; third antennal segment rather elongate (Pl. X, fig. 7) **Stichopogon.**

Front not unusually widened above; bristles on the lateral margins and posterior callosities of thoracic dorsum and on the scutellar margin numerous and well developed; third antennal segment short and broad; species much resembling *Stenopogon* in general appearance (Pl. VII, fig. 3). **Willistonina.**

31 Large elongate reddish species, with deep brown wings (Pl. VI, fig. 2) **Callinicus.**

Smaller species with cylindrical abdomen; black, with bright golden opaque pruinose markings on thorax and abdomen; legs mostly yellow, wings nearly hyaline (Pl VI, fig. 6). **Chrysoceria.**

32. Face bare with bristles on the oral margin, in profile straight or concave, the oral margin most prominent 33

Face convex below, the oral margin not prominent, more or less covered with hair 34.

33 Fourth posterior cell closed a considerable distance before the margin of the wing (Pl. IX, fig. 5) **Deromyia.**

Fourth posterior cell open or closed in the margin (Pl. VII, fig. 4). **Saropogon.**

34 Third segment of antennæ more or less dilated, the style very short, the thoracic dorsum when viewed from before with four longitudinal rows of long bristles, one each on either side of the median stripe and on the lateral margins (Pl. X, fig. 1) . **Lestomyia.**

Third segment of antennæ slender, elongate 35

35 Abdomen finely punctate; the third segment of antennæ quite elongate, notched on the upper side near the middle and there bearing a forward directed spine (Pl. III, fig. 6). **Taracticus.**

Abdomen smooth, not finely punctate 36.

36. Abdomen flattened, in the female a little broader beyond the middle; in the male very flat, much broader near tip (Pl. II, fig. 8), seventh and eighth retracted within the sixth and not visible from above; the fifth and sixth segments above conspicuously silvery and bearing on each side five distinct punctures (Pl. X, fig. 2) **Nicocles.**

Abdomen not at all expanded as above (Pl. XI, figs. 3, 4; VIII, 5). **Cophura.**

LEPTOGASTRINÆ.

The Leptogastrinæ in America, north of Mexico, is represented by the single genus *Leptogaster.*

LEPTOGASTER.

(Pl. VI, Fig. 1.)

Leptogaster Meigen, Illig. Mag., II, 269, 1803.
"*Asiles tipuloides,*" Latreille, Hist. Nat. Crust. et Ins , IV, 1802.
Gonypes Latreille, id, XIV, 309, 1804
Gonypes Latreille, Dictionaire d' Histoire naturelle de Deterville, ed. I, 1804.
Leptogaster Meigen, Syst. Beschr., II, 258, 1820
Gonypes Macquart, Hist. Nat Dipt. I, 315, 1834.
Leptogaster Zetterstedt, Dipt. Scand., 1, 186, 1842
Leptogaster Schiner, Fauna Austr. I, 117, 1862.
Leptogaster Williston, Biologia, Dipt., 298, 1901 (Partial table of Mexican species)

Very slender, abdomen very elongate, almost bare species of from small to medium size. Marginal cell of wing open; five posterior cells present, all open; third segment of the antennæ with a bristle-like style. Legs without pulvilli, the empodia in form of a stout bristle, or, rarely, absent; tibiæ without terminal claw-like spear.

The large eyes occupy nearly the entire head, leaving only a very narrow face without gibbosity and with mystax thin and confined to the oral margin; proboscis short Front and vertex well depressed, ocellar tubercle distinctly elevated. Antennæ approximate, the first and second segments subequal in length, but the second more robust than the first; the third segment more or less elliptical, sometimes more elongate, usually somewhat compressed; style bristle-like, longer or shorter than the third segment, often composed of two parts, and, together with the third segment, pubescent in varying degrees. Thorax with a high arch, the anterior part of the mesonotum usually projecting over the pronotum; the scutellum very small. Dorsum with two well developed bristles on either side, one presutural, the other post-alar, upon the callosity. Abdomen long and very slender, at least from four to six times the length of the thorax, usually with a distinct bend at the union of the first and second segments; at the tip, sometimes broader in the male, in the female occasionally very prominently swollen; without bristles except on the posterior margins of the first segment. Legs rather slender, the front tibiæ without a terminal claw-like spur; the hind legs much longer than the anterior pairs, their femora usually very slender on basal portion, on the distal portion usually gradually or suddenly incrassate, but sometimes scarcely thickened; hind tibiæ sometimes very long and slender. Femora without bristles except at tip above; the tibiæ with few, the tarsi with more, bristles; tarsi usually bent back upon themselves. Claws strong, pulvilli wanting; the single empodium of each foot bristle-like, of varying length, but sometimes absent. Wings shorter than abdomen; sometimes considerably attenuated on basal portion; marginal cell open; five posterior cells present; all open; the fourth petiolate, subsessile or sessile; anal cell open.

Type.—Asilus tipuloides Fabricius.

Prof M. Bezzi states in Wien. Ent. Zeit., Vol. 26, page 55, that *Gonypes* should take priority over *Leptogaster*. Latreille, in the fourth volume of his Histoire, divides the Asilidæ into four groups of which the last is "*Asiles tipul oides*" with *Asiles tipul oides* F. as an example. But Latreille did not give to this group the generic name *Gonypes* until the year 1804, when the fourteenth volume of his Historie appeared. Meanwhile Meigen published and described *Leptogaster* in 1803 in Illiger's Magazin, and gave as the type *Asilus tipul oides*. According to the Law of Priority of the International Code of Nomenclature, page 35, article 25, *Leptogaster* must still hold the priority.

SYNOPSIS OF SPECIES*

1 Empodia absent 2
Empodia present 3
2 Hind femora with one large yellow band on its swollen portion, hind tibiæ five banded, second posterior cell hardly longer than the third **annulatus.**
Hind femora with two distinct yellow bands on its swollen portion, hind tibiæ four banded, second posterior cell considerably longer than the third **schæfferi.**
3 Anterior intercalary vein forming a distinct angle with that portion of the posterior cross vein that closes behind the second posterior cell (Pl 2, fig 6) 4
Anterior intercalary vein not forming a distinct angle, but appears more or less continuous with that portion of the posterior cross vein that closes behind the second posterior cell (Pl II, fig 7) 11
4 Dorsum of thorax polished black hind femora with a large median yellow ring on its swollen portion **atridorsalis**
Dorsum of thorax not wholly polished black 5
5 Dorsum of thorax with median and two lateral stripes polished black†, ground color of thorax elsewhere pinkish but covered thinly with a white bloom **virgatus.**
Dorsum of thorax not so 6
6 Color of body nearly wholly yellowish red **testaceous.**
Color of body not as above 7
7 Penultimate fifth of the hind femora below with a conspicuous patch of white pile **hirtipes.**
Hind femora without such a patch of pile 8
8 Fourth posterior cell petiolate at base‡‡ 9
Fourth posterior cell sessile or subsessile, very small species with white pruinose bands on abdomen proximal portion of swollen part of hind femora dark brown, distal portion, yellow, extreme apex, dark **pictipes.**

---

* This key has been made from a limited supply of specimens of the species included I have omitted *ochraceus* and *scapularis*, which I have never identified with certainty All of the type material of Loew, Coquillett and myself, run very well, as does the rest of the material in my possession I have never seen but one specimen of *brevicornis* The greatest difficulty will be found at couplet 3, in some species the venation mentioned is inclined to be variable in different or even in the same specimen, and it may be necessary to try both 4 and 11 before placing the specimen in question

† Sometimes these vittæ are reddish, see note under description of species

‡‡ The fourth posterior cell of *pictipes* is sometimes appreciably petiolate

9 Thoracic dorsum polished reddish-brown with a polished black* spot on each side behind the transverse suture Species of good size Hind femora with a narrow dark ring on the middle of the distal portion **badius.**

Thorax not as above 10

10 Abdomen yellow, the posterior margins of the segments narrowly black or blackish **incisularis.**

Abdomen grayish with yellowish markings, sometimes very faint, on segments 2–4 **flavipes.**

11 Fourth posterior cell sessile or subsessile, antennæ wholly yellow, the third segment oval, short **brevicornis.**

Fourth posterior cell petiolate 12

12 Dorsum of thorax with a median and two lateral stripes polished black,† ground color of thorax elsewhere pinkish, but covered thinly with a white bloom **virgatus.**

Dorsum of thorax not as above . 13

13 Dorsum of thorax grayish pruinose, with three brown stripes, antennæ yellowish, the hind femora on the penultimate fifth below with a conspicuous patch of white pile **hirtipes.**

Hind femora without such a patch of pile 14

14 Dorsum of thorax very dark brown pruinose, in sharp contrast to the white bloom of pleuræ†, antennæ and occipital bristles black, hind tibiæ very stout and blackish on distal half **murinus.**

Dorsum of thorax not so 15

15 Hind femora and tibiæ proportionally very slender 16

Hind femora and tibiæ normal 17

16 Reddish brown species with polished dorsum, lateral margins, posterior portion, pleuræ, and scutellum grayish pruinose, wings wholly brownish **obscuripennis.**

Wings hyaline sometimes clouded at base **tenuipes.**

17 Antennæ and legs pale yellow, abdomen grayish with distinct or faint traces of yellow markings **flavipes.**

Antennæ rufous, third segment black on distal portion, abdomen nearly uniformly brownish black, grayish on sides, not ringed legs with blackish markings **eudicranus.**

Basal segments of antennæ, the legs, and abdomen yellowish, the posterior margins of the segments of the latter black or blackish **incisularis.**

---

* Sometimes of the same color as rest of thoracic dorsum

† This striking contrast is not brought out in poorly preserved specimens

Leptogaster annulatus.

Leptogaster annulatus Say, Jour Acad Sci Phil, III, 75, 1823, Comp Works, II, 68

Leptogaster histrio Wiedemann, Auss Zw, I, 535, 1828

Leptogaster histrio Wiedemann, Schiner, Verh Zool-Bot Ges, XVII, 356, 1867

♂ ♀ —*Length* 8 11 *mm* —Face and mystax white, thorax pinkish, thinly whitish pruinose, abdomen blackish with white bands *Empodia wanting*

Head black, face and occiput white pruinose, mystax white, proboscis black, at base yellow Antennæ pale straw colored, third segment elongate oval, shorter than the style, sometimes dark Thorax pinkish, with three dilated pale brown stripes on the dorsum Abdomen dark, from almost quite black on the distal segments to pale on the proximal ones, distally, in the female, strikingly dilated segments 2–6 with a distinct yellowish white fascia about the posterior margin. Legs pale straw, the tarsi, excepting their tips, almost white, front and middle femora tipped with black, the hind pair incrassate, the slender portion sordid white, the incrassate portion dark brown with a wide yellowish red band Hind tibiæ five banded as follows —bands one, three, and five, dark brown, the proximal one bordering on red, band two, white band four, yellowish Claws black, *empodia wanting* Wings pure hyaline, violaceus, the second posterior cell not elongated, and the fourth sessile or subsessile

Type —Lost

Habitat —Mass, N Y, Pa (type), N J (July 25, Aug 23, E Daecke), D C (Aug 23), N C, Southern Ga (Morrison), Ark, Yucatan (G F Gaumer)

This species is recognized at once by its pinkish thorax and the distinct and striking color markings of the legs and the absence of empodia These latter are present in all other species of *Leptogaster* except *schæfferi*, known to me from America, north of Mexico Described from fourteen specimens The specimen from Yucatan is in the collection of the University of Kansas and compares perfectly with our northern specimens There are four specimens at the M C Z

Leptogaster atridorsalis n sp

♂ ♀ —*Length* 8–9 *mm* —Thorax black, anterior two-thirds of dorsum bare, highly polished, posterior third, lateral margins, pleuræ and coxæ, white pruinose

Head black, face, mystax and occiput, white, proboscis polished dark brown Antennæ short, segments 1–2 pale straw, segment 3 equal in length to the first two taken together, oval, dark brown, a trifle shorter than the long slender black style. Thorax black, anterior two-thirds of dorsum bare, highly polished; posterior third, lateral margins, pleuræ and coxæ, white pruinose; bristles of thorax, white. Abdomen polished black, posterior margin of segments 2–6 yellowish, and white pruinose; fine pile of abdomen white. Legs deep testaceous, front and middle tibiæ with a dark line down the sides; hind femora gradually incrassate on the distal half with dark brown subapical testaceous ring; the brown coloring of the incrassate portion extends as a dark line along the anterior side of the whitish basal half. Hind tibiæ dark brown with a wide pale yellowish band on the proximal half; the tarsal segments more or less pale straw with darker apices, the hind tarsi, however, wholly brown. Wings pure hyaline, the second and third posterior cells subequal, the fourth with a long peduncle. Empodia present, claws black.

Type.—Collection of Prof. C. W. Johnson, Curator of the Boston Society of Natural History. Two female and one male co-types.

Habitat.—Philadelphia, Pa., July 14, 1891; Folsom, Delaware Co., Pa., July 23, 1893.

This species is easily recognized from other Leptogasters by its polished black mesonotum.

Leptogaster badius (Pl. VI, fig. 1).

Leptogaster badius Loew, Cent., II, 6; 1862

♂ ♀.—*Length* 12–15 *mm.*—Dorsum reddish-brown, polished, usually with two rounded, more or less prominent polished black spots, one on each side, behind the transverse suture; hind femora yellowish-brown with a subapical brown ring.

Brown, polished; antennæ yellow, the third segment linear, tapering gradually, not less than twice the first two segments taken together, style black. Face white pruinose, pile of mystax white, occiput grayish pruinose with pale bristles; palpi and proboscis testaceous. Dorsum reddish-brown, highly polished, with two rounded polished black spots (sometimes missing), one on each side behind the transverse suture; dorsum behind these spots and on the lateral margins, and the pleuræ, coxæ and scutellum thinly grayish-white pruinose. Halteres pale. Abdomen obscurely brown, subfuscous, the median bands of the several segments more or less obsolete; the anterior and posterior margins of each segment are lighter, giving in fresh specimens the appearance of a definite ring or band, and in some lights show a thin white bloom. Bristles of the thorax brown; pile of pleuræ and abdomen, white. Legs polished yellowish-brown, the hind femora gradually incrassate and bear a subapical brown band or ring; the front and middle femora and their tibiæ, together with the hind tibiæ, with a dark brown stripe or line along their anterior surfaces which is variable in extent, and, in some cases, lacking; tarsi brown, the first segment, except its apex and the bases of the following segments below, pale straw. Wings hyaline, basal third pale fuscous; second submarginal cell short, narrower toward the apex, the second posterior but little longer than the third, the fourth posterior with a long peduncle; the anterior intercalary forms a sharp angle at its junctions with the posterior cross-vein

Type.—M. C. Z. A single male and female, each in a poorly preserved condition.

Habitat.—Ill. (type); White Mts, N. H.; North Saugus (July 12, 1906), Amherst (July 2–25), and Woods Hole (Aug. 4), Mass.; N. Y.; Jamesburg (July 4), Dunnfield, Delaware Water Gap (July 8, 15), Pa.; Riverton (July 30), C. W. Johnson, N. J.; Douglas Co., Ks.; Neb.; Ind.; Milwaukee (June 23), Wis.; Montreal, Canada.

Readily distinguished by its clear glistening chestnut dorsum, the two polished black spots behind the transverse suture, and by the white bloom of the lateral margins and pleuræ. The polished spots behind the transverse suture are sometimes of the same color as the rest of the dorsum. Described from twelve specimens.

Leptogaster brevicornis.

Leptogaster brevicornis Loew, Cent, X, 23; 1872.

♀.—*Length about* 10 *mm*—Dark brown species· the third segment of the yellow antennæ ovate and a little shorter than the corresponding segment in other species, and shorter than its style. Hind femora with a conspicuous dark brown ring.

Face and mystax whitish; thorax brownish, the dorsal stripes, however, more obscure and covered with a light gray bloom. Abdomen subpolished, toward the basal portion opaque, and covered with a grayish bloom; segments 2–4 each with a subapical yellow ring, besides more obsolete interrupted dull yellow rings on the bases of segments 3–5 above; vestiges of a median ring may be seen also on the second segment. Legs yellowish, the hind femora before the apex with a very prominent dark brown ring; the other femora with a less distinct and perfect one. Hind tibiæ brownish; the yellow basal third on both sides with a dark line; the distal two-thirds brown with a reddish tinge, and bearing a median yellow ring. Wings subhyaline, slightly tinged with yellow; veins dark brown; the second submarginal and second posterior cells greatly elongated but do not exceed three times the length of the peduncle as Loew says. Fourth posterior cell sessile or subsessile.

Type.—M. C. Z. Single female type in good condition.

Habitat.—Texas (type); Washington, D. C. (?).

Loew furnishes us with the following note: "*L. brevicornis* in color and markings of the body and the arrangement of the veins of the wings approach nearest to *L. favillaceus*, but the third segment of the antennæ of the former is ovate and a little shorter than the style, but of the latter, indeed, is quite long, and longer than the style; besides the second submarginal and the second posterior cells in the former also are longer."

Leptogaster eudicranus.

Leptogaster eudicranus Berl. Ent. Zeit., XVIII, 353, 1874.

♀ *Length* 8–9 *mm.*—Translation.—Of a dull, darker brown color; the thoracic dorsum toward the lateral borders, the lateral margins of the abdomen and the venter more ashy gray. Face densely snow-white pruinose, the white mystax is made up of a single row of hairs. Proboscis black, the same color appears to be on the everywhere dark colored palpi. The first and third antennal segments black, the second red. Front deep brown, the occiput white pruinose, the latter with a transverse row of black bristles behind the vertex. The ground color of the thorax appears on the humeri as far as the lateral margins and extends to the posterior edge as a smutty reddish-brown, which, however, the bloom does not render very perceptible. Pleuræ with denser whiter bloom, but after this is rubbed off, the same smutty reddish-brown is seen. Abdomen dull brownish-black, hardly anywhere polished, and when so indeed only through the rubbing off of the bloom; on the lateral margins and on the vertex more gray. In a superficial examination of the abdomen, no lighter ground color is hardly to be noted, but by a close scrutiny one rightly notices that the outer lateral borders of the second segment and a little spot on the anterior margin of the third segment have a leather-yellowish color much concealed by the grayish bloom present there. Front coxæ reddish-yellow with a thicker white bloom; hind coxæ reddish-yellow with a thinner whiter bloom. Front femora brownish-yellow, on the underside black, and on the upper side as far as the end, very much darker, on the likewise colored intermediate femora the black color appears no darker than the hinder side and a small, hardly apparent, ring on the free apex; the front tibiæ and tarsi lemon yellow, the former on the anterior side and the last segment of the latter at tip, black. Color of the hind femora at the base is of the same pale yellowish color, and becomes red at the end of the same; it is very much obliterated by a prominent black picture; this stands out as a longitudinal fascia lying on the anterior side and a second on the posterior side, which begins very small at the base of the femur, but soon broadens very much, reaches around to the underside of the femur and there not very far from the end is gradually abbreviated. The robust hind tibiæ are black, on the upper side red, which color extends to the yellowish of the base itself, and so becomes somewhat spread out on the underside; their tarsi muddy yellow, the several segments somewhat black on the apex. Knob of the halteres black. Wings proportionately small, shining, with blacker, more truly-grayish obscurity, and, without exception, black veins; the two submarginal cells proportionately small and extraordinarily long, their peduncle only a little longer than the sixth part of the cell itself; the second posterior cell likewise very long with its base lying close to the lower half of the base of the second submarginal cell; the fourth posterior cell with a tolerably short peduncle; the anal cell smaller than in most other species.

Type.—M. C. Z. A single female specimen.

Habitat.—Texas (type); Alamorgordo, N. M. (Apr. 16, and May 1, 1892).

I have two specimens, belonging to the Am. Ent. Soc., which agree almost perfectly with the above description except that the occipital bristles are white and the first and second segments of antennæ are both reddish.

Leptogaster flavipes.

Leptogaster flavipes Loew, Cent., II, 15, 1862.

Leptogaster flavipes Van der Wulp, Tijdschr. v. Ent, XXVII, (sep.) I, male described.

Leptogaster favillaceus Loew, Cent., II, 12, 1862.

Leptogaster flavicornis Van der Wulp, Tijdschr. v. Ent., X, 136, 1807.

Leptogaster flavicornis Loew, Zeitsch, f. Ges. Naturwiss., XXXVI, 120 (says probably is a synonym of *flavipes*).

♂ ♀.—*Length* 8-12 5 *mm.*—Small grayish species with yellow legs and antennæ.

'Face and mystax white; antennæ yellow, the third segment ovate, shorter than its black style; occiput grayish pruinose, with pale bristles. Proboscis black. Dorsum cinereous, humeri yellowish; the median stripe geminate, abbreviated behind; pleuræ and coxæ white pruinose. Abdomen grayish, slightly polished, the lateral margins of segments 2-4 and two incomplete bands on each, yellow. In some specimens this yellow is found only as a ring about the posterior margins of these segments. Pile of abdomen moderately abundant and white. Legs clear yellow; often very much faded; hind femora incrassate and sometimes with a darker distal portion; hind tibiæ fuscous at tip. Empodia present. Wings hyaline, costa yellowish; second posterior cell but little longer than the third; the fourth with a short but variable peduncle.

Type.—M. C. Z. *flavipes* and *favillaceus.* There are five specimens of *flavipes*, one of which bears a label in Loew's handwriting; *favillaceus* is represented by a single female specimen.

Habitat.—Atlantic States, not rare; Neb. (type); Beverly (June 18; July 7 and 10), Amherst (June 14, 15, 23; July 8, 15; Aug. 5) and Williamstown (June 27, Scudder), Mass.; Mosholn (June 20) and Forest Park, L. I. (June 14), N. Y.; Newark (June 16) and Dunnfield (July 15), N. J.; Champaign Co., Ill.; Mich.; Minn.

I believe that *flavillaceus* is none other than a large *flavipes.* Loew described *favillaceus* from a single female which shows traces of indistinct yellowish bands on the same segments of the abdomen that they appear on in *flavipes.* Loew had at most but two specimens from which to make his description of *flavipes.* I have studied about twenty specimens of *flavipes*, and they show such a variation in size and distinctness of coloration that I believe that these two species should be united. The type of *favillaceus* is somewhat larger than most specimens of *flavipes*, but some of the latter are as large.

Leptogaster hirtipes.

Leptogaster hirtipes Coquillett, Pro Ent Soc. Wash , VI, 178, 1904.

♂ ♀ —*Length* 11-14 *mm* —Hind femora whitish at base, yellowish-brown on swollen portion, the proximal half of the latter beneath with a conspicuous patch of snow-white pile. Antennæ yellowish, occiput above with black bristles, abdomen not distinctly ringed, the second posterior cell of the hyaline wings much longer than the third

Face silvery white pruinose with a rather dense pure white mystax; the front and occiput more grayish pruinose. Bristles of the upper occiput rather stout, black, the remaining bristles along the outer orbits and the scant beard white; proboscis polished black. Antennæ yellowish, the third segment considerably shorter than the bristle-like style, oval, tapering slightly at each end and often darker than the basal segments. Thorax black, the humeri and posterior callosities only being yellowish, wholly light gray pruinose, a trifle darker upon the dorsum where there are one median and two lateral brown pruinose stripes which are very distinct in good specimens Of the two strong bristles on either side of the dorsum, the one before the base of the wing is white, the one further back, black Halteres dark, with paler peduncle Abdomen black brownish pruinose, the first segment and both ends of the others grayish pruinose the posterior margin of the first with a row of stout black bristles

In a greased specimen the posterior margin of segment 3 and both ends of segments 4–5, and the extreme base of segment 6, all yellowish-red, the genetalia of all the specimens in part reddish Legs yellowish, the tips of the front and middle femora above black, their tibiæ with a black line down their anterior side hind femora whitish on the slender basal portion, yellowish brown on the swollen portion, the brown color of the latter extends in a narrowing line nearly to the trochanter along the anterior and posterior sides of the white slender basal half, hind tibiæ whitish above and before but very dark brown on the inner and outer sides, especially so upon the distal half apices of all the tarsal segments blackish the last segment almost wholly black Claws black, empodia present about one half as long as the claws Wings hyaline, veins strong, black, paler at base of wing, the second posterior cell much longer than the third and with its base nearer the base of the wing than that of the second submarginal the fourth posterior with a short peduncle

Type—U S N M , Cat No 7946 Type series consists of two males and two female specimens

Habitat—Colo (Morrison), Rio Rindoso, White Mts , N M , alt about 7,600 ft (Aug 2, C H T Townsend), Cloudcroft, N M (June 18, 19 Am Ent Soc Phil)

Leptogaster incisuralis.

Leptogaster incisuralis Loew, Cent , II, 1862

♂ ♀ —*Length* 10–12 3 *mm*—Small yellowish species Thorax reddish, white pruinose, on the thoracic dorsum with a very large black spot placed with the stripes, abdomen yellowish, with polished black rings, legs pale straw colored, the obsolete rings of the hind femora a little darker wings hyaline, fourth posterior cell with a short peduncle

Face white pruinose, mystax of same color, antennæ reddish, the third segment elongate oval with a darker style of about the same length, occiput sordid yellow pruinose with yellowish bristles, proboscis deep brown Thorax reddish, thinly white pruinose, the stripes of the dorsum very broad, running together into a very large black spot, the whole dorsum being more brownish pruinose than the pleuræ which are reddish above, black below, but wholly whitish pruinose

Scutellum black, white pruinose The black of the mesonotum, scutellum and the lower portion of the pleuræ is variable and the black spot on the dorsum of the type specimen is not at all clearly defined Abdomen yellowish, the first segment and the posterior margins of the several following segments polished black, the median vittæ of the last three segments black, pile of all the segments white Legs dull yellow, the obsolete subapical ring of the third hind femora and the apex of the hind tibiæ brownish, the apex of the distal segments of the tarsi black Claws black, empodia present Wings hyaline, tinged with yellow, violaceous, the second submarginal cell equal twice the length of the peduncle, second posterior cell moderately elongate, the fourth pedunculate

Type—M C Z Single male type

Habitat—Ill (type), N Y, Riverton (July 30, Aug 11, 13, C W Johnson), and Atco, N J, Phila (June 11), Pa, Milwaukee (June 24), Wis

This species is closely allied to *flavipes* in general appearance and is sometimes mistaken for it The above description was made from eight specimens, including the type male

Leptogaster murinus.

Leptogaster murinus Loew, Cent, II, 9 1862

Leptogaster murinus Jones, Trans Am Ent Soc Phila, XXXIII, 273, 1907 (locality note)

♂ ♀—*Length* 12–14 5 *mm*—Rather larger grayish brown species, the thoracic dorsum deep brown pruinose, in sharp contrast to the white pruinose pleuræ Antennæ and bristles of upper occiput black, abdomen not ringed legs clear yellow, the posterior femora on distal portion and the distal half of their tibiæ reddish brown or blackish

Face and mystax white, the front and occiput brownish pruinose, bristles of the occiput black, extending along the orbits, but stoutest on the upper part Proboscis black Antennæ polished black, sometimes tinged with reddish, second segment rounded the third elongate oval, shaped somewhat like an Indian club, the bristle like style attached to its handle, and about one half as long Thorax black, well arched, the dorsum with a dark brownish bloom almost obscuring the geminate stripe, and paler on the posterior part before the scutellum, the pleuræ and coxæ white pruinose and stands out in sharp contrast to the brownish dorsum Halteres with blackish knob and whitish peduncle Abdomen ringed, brownish pruinose, subopaque, more grayish toward its lateral margins Legs clear yellow, polished, hind femora only gradually thickened distally, upon distal portion with a short reddish-brown or blackish stripe before and behind, the distal half of the hind tibiæ likewise reddish-brown, the metatarsi yellowish except at tip, the remaining segments darker, the distal three nearly black. Claws stout, black; the empodia about one-half their length. Wings subhyaline, a little darker along the basal half of the costa; veins dark brown, the anterior intercalary not forming a distinct angle with that portion of the posterior cross-vein which closes behind the second posterior cell; the second submarginal cell not very long, the second posterior quite long, the fourth posterior with a short peduncle.

Type.—M. C. Z. A single female specimen.

Habitat.—Nebraska (type); Springview Bridge, Brown Co., Nebr. (June 10, 1902); Chicago, Ill.; Columbia, O.

Easily separated from othes Leptogasters by the striking contrast between dorsum and pleuræ of thorax. The above description was made from the type and specimens at the American Museum.

Leptogaster obscuripennis.

Leptogaster obscuripennis Johnson, Proc. Acad. Nat. Sci., 1895, 304, 323.

♂♀.—*Length* 13–14 *mm.*—Head brown, face, front inferior orbits and occiput covered with a dense grayish pubescence; proboscis black, yellow at base; antennæ yellow, the third segment and style black, the former very small, suboval, much shorter than the long style. Thorax brown, dorsum polished, lateral margins, pleuræ, posterior angles, and scutellum covered with a grayish pubescence. Abdomen: first segment blackish with a prominent row of bristles on the posterior margin, the second and third segments brown, the remaining segments blackish with more or less brown at the anterior and posterior margins, and covered with a grayish pubescence. Venter brownish. Legs reddish, thickly covered with minute yellow hairs, and dark brown spine-like bristles on the tarsi; claws black, bristles on the tibiæ yellow; wings of a uniform dark brown; veins black.

Type.—Collection of Prof. C. W. Johnson, Curator of the Boston Society of Natural History. One male and one female specimen.

Habitat.—St. Augustine and Orlando (May 18), Fla.

The above is Prof. Johnson's description. At the American Museum there is a single specimen, 10 mm. long, from Gotha, Florida, collected in March by Dr. W. M. Wheeler, which very closely resembles the type, but the greased dorsum shows three black stripes, the second and third abdominal segments are yellowish below, blackish above, and the rest of the abdomen is uniformly brownish-black The hind femora and tibiæ seem some longer, all the tibiæ bear black bristles, except at tip, and the hind tarsi are black The front and middle tarsi and the third antennal segment are gone The wings are darkened only on the basal half, the outer half is pure hyaline, as in the type, the second posterior cell is considerably longer than the third, and the fourth with a long peduncle More material may prove this a new species

Leptogaster ochraceus.

Leptogaster ochraceus Schiner, Verh Zool-Bot Ges, XVII, 359, 1867

Length about 12 *mm*—Translation—Entirely light ochre-yellow, the dorsum with a light brownish bloom, dull, with traces of four duller longitudinal stripes, pleuræ shining white pruinose Abdomen somewhat glistening, the first segment in the middle with a brown spot, the following notched (ein chositten) with brown Lower part of face shining white, mystax white, outstanding, proboscis brown, at base lighter Antennæ yellow, the third segment brown, short elliptical, moderately pointed distally, the bristles short and thick Legs yellow, the femora at base nearly white, on the metatarsi in particular noticeably so, the metatarsi being short Claws black, empodia half as long as the claws Wings tinged with yellow, veins yellow, the cubital cell (second submarginal) very long, more than twice as long as its peduncle, the anterior branch of the third longitudinal vein, closing the cell before, curved upward (bauchig erhoben), the second posterior cell longer than the third posterior, its peduncle shorter than that of the second submarginal, the fourth posterior cell with a very short peduncle

Type—Collection of Winthem Two specimens without sex designated

Habitat—Penn (type)

As far as I know this species has not been recognized by American students I have sometimes thought that *testaceus* and *ochraceus* must be closely related

Leptogaster pictipes.

Leptogaster pictipes Loew, Cent, II, 7, 1862

Leptogaster varipes Loew, Cent, II, 81, 862

Leptogaster varipes Townsend, Annals and Mag Nat Hist, XX, 23

♂ ♀—*Length* 5-7 *mm*—Polished black, face whitish pruinose, thorax everywhere thinly white pruinose except the dorsum, which is covered with a light brown bloom. Abdomen dark brown, first segment and posterior margins of the following segments whitish pruinose; empodia present.

Face white pruinose with mystax of same color: occiput and vertex thinly grayish pruinose; proboscis black. Antennæ (Pl. IV, fig. 10), yellowish, darker toward tips; third segment short, about equaling the style; both the third segment and the style clothed with sparse but distinct outstanding microscopic hair Thorax polished black, everywhere thinly white pruinose except on the mesonotum, where the bloom is light brown; the median stripe geminate, and the more obscure lateral stripes very broad. Abdomen polished, dark brown; the first segment and the posterior margins of the following segments whitish pruinose; venter whitish pruinose The female abdomen is strikingly swollen distally as in *annulatus*. Legs whitish; front femora somewhat yellow toward tip, the apical third of hind femora greatly incrassate, dark brown, with fulvous subapical ring which in some cases extends to the apex. Hind tibiæ gradually incrassate, basal third whitish like base of the femora, apical two-thirds dark brown with a more or less prominent testaceous median ring Tarsal segments whitish, their apices brown Halteres polished black, peduncle whitish. Empodia present, claws black. Wings pure hyaline, violaceous, veins polished black; second posterior cell not elongate, the base obliquely truncate with the base of the second submarginal cell opposite, fourth posterior cell sessile or subsessile, occasionally with a pronounced peduncle.

Type.—M. C. Z. One male type of *pictipes*, and one female type of *varipes*.

Habitat.—Ill. (type); L. I. (Aug. 2), N. Y.; Clementon (May 30), Atco (June 4 and 18), Dunnfield (July 12) and Riverton (July 7), C. W. Johnson, N. J.; Pa. (June 17, July 5, Sept. 8, E. Daecke); Md.; D. C.; Va.; N. C.; Ga.; Ala.; Huachuca Mts., Ariz. (H. Skinner); Vera Cruz, Mexico.

Described from twelve specimens including the type. Many specimens have antennæ very dark and a yellowish cast to the pruinose bands of the abdomen, and the legs are often yellowish. It is readily distinguished from *annulatus*, which it closely resembles, by the bands of the legs and the presence of empodia.

Leptogaster scapularis.

Leptogaster scapularis Bigot, Annales, 1878., 444.

Length 14 *mm.*—Nigro fusco, pleuris scapulisque late rubidis; antennes nigris, base fulvis; facie et mystace albidis; halteribus fuscis;

abdomine, segmentis 2-3 utrinque, apice, obscure fulvis; pedibus fulvis, femoribus anterioribus et intermediis, intus et apice, tibiis intus, tarsipuq obscure castaneis, posticis, femoribus apice, nigro annulatis, geniculis, tibiis et tarsis apice, nigro castaneo; alis pallide fuscis, intus et apice, late, fere, hyalinis.

Translation.—Fuscous black, the pleuræ and scapulæ broadly reddish; antennæ black, fulvous at base; face and mystax whitish; halteres fuscous; abdominal segments 2–3 on base and apex obscurely fulvous, legs fulvous, the front and middle femora before and at the apex and the tarsi obscurely chestnut-brown; the posterior femora at apex black ringed; the knees, tibiæ and tarsi at tip brownish-black; wings pale fuscous, within and at the apex broadly hyaline.

Of a brownish-black color; humeri, sides, flanks and haunches largely reddish; antennæ and proboscis black, the first segment of former reddish; face and beard white. Halteres brown. Abdomen with some grayish reflections on the sides, the posterior lateral portions of segments 2–3 obscurely reddish. Legs reddish-yellow, the front and middle femora before and above their tips blackish, their tibiæ with a blackish band along their interior side; the posterior femora with a large dark ring towards the tip, their knees and tips of tibiæ blackish; tarsi blackish, with black bristles, the metatarsi yellow. The hind tibiæ bear at their tips a few white bristles Wings brownish, principally so towards the middle of the disc; base hyaline, as well as the interior borders, the posterior borders and the tip.

Habitat.—California (type).

There are at the American Museum two specimens collected in Monterey County, Cal., July 1, 1896, by Dr. W. M. Wheeler, which may be this species. The wings are uniformly hyaline; the second posterior cell is rather long and the fourth is pedunculate. The head, thorax and abdomen agree very well with the description, but both basal segments of the antennæ are yellowish and the legs are without distinct coloration. The third segment of the antennæ is a very short oval with a longer style.

Leptogaster schæfferi n. sp.

♀ —*Length about* 12 *mm.*—Similar to *annulatus* in regard to the absence of empodia, but larger. All the femora are banded: the hind pair gradually but distinctly swollen; the slender basal portion white below, blackish above, the swollen distal portion brownish-black with two distinct reddish-yellow bands; the hind tibiæ four-banded as follows:—band 1, white; bands 2 and 4 almost black; band 3, reddish-yellow.

Face sordid white, mystax very sparse, white front and occiput in certain lights almost brownish gray, bristles of occiput very fine, whitish, the ocellar tubercle polished black Proboscis black, at extreme base yellowish Antennæ reddish, the third segment rather oval, darker than the basal segments and considerably shorter than the bristle like style Thorax dark testaceous the dorsum light brownish pruinose with an indistinct median line of lighter bloom extending from the pronotum to the base of the scutellum lateral margins, posterior callosities, pleuræ and scutellum with a moderately dense light brownish gray bloom which before the halteres is more white, bristles of dorsum fuscous Halteres with sordid vellow peduncle and darker knobs Abdomen brown, the lateral margins rather broadly, and the posterior margins of the segments more narrowly, grayish pruinose the scant pile of the abdomen whitish Front and middle legs when viewed from below appear whitish the tibiæ and tarsal segments tipped with red when viewed from above, the tibiæ, especially the middle pair are more brownish yellow the femora are whitish toward the base but more reddish yellow on the distal two thirds and bear on the outer part an ill defined dark ring, which on the front pair scarcely meets below, but is more distinct on the middle pair The hind femora slender at base but gradually incrassate distally the slender basal portion whitish below, above and without brownish black the swollen portion brownish black with two distinct and prominent yellow rings Hind tibiæ moderately thickened with white terminal bristles and not counting the extreme base black, four banded as follows —band 1, whitish bands 2 and 4 dark brownish band 3, reddish yellow the dark color of the second band extends upward in a narrowing line on the inner and outer sides of the first band Hind metatarsi white with white bristles the following segments and their bristles blackish Claws stout wholly black empodia *wanting* Wings hyaline, slightly tinged with a darker color the second submarginal cell about three times the length of its peduncle the second posterior much longer than the third posterior, with its base slightly nearer the base of the wing than that of the second submarginal, the fourth posterior cell with a short peduncle The anterior intercalary vein does not form a distinct angle with that portion of the posterior cross vein which closes the second posterior cell behind

Type —Brooklyn Institute A single female

Habitat —Brownsville, Texas, May (type)

Another specimen from the same locality, but collected in April, agrees with the type specimen except that the bloom of the pleuræ appears lighter in color and the posterior portion of segments 2–4 of the abdomen is noticeably yellowish, while in the type specimen this yellow is practically obsolete; the fourth posterior cell of one of the wings (the other is wanting) is sessile.

Leptogaster tenuipes.

Leptogaster tenuipes Loew, Cent., II, 14, 1862.

♂ ♀.—*Length* 9.2–10 *mm.*—Brown, subpolished; hind femora and tibiæ unusually slender; antennæ blackish; thorax reddish, dorsum with a large dead-black spot; wings hyaline, sometimes darker on the basal portion, the second submarginal cell equal in length to its peduncle.

Face white pruinose, mystax of same color. Antennæ black, the basal segments fuscous; the third segment rounded at base, gradually tapering toward tip, shorter than the black bristle-like style. Occiput without stout bristles but with white pile below. Thorax reddish, but covered by a thin whitish bloom; the three dorsal stripes run together to form a large dead-black spot covering the larger part of the dorsum. Bristles on the posterior callosities black, as also is the fine hair of the dorsum; the anterior portion of the meso- and sternopleuræ with prominent white pile. Halteres yellowish, the knobs darker. Abdomen brown, towards the apex blackish, not ringed; the very fine hair on the sides white. Legs slender, very slightly testaceous, the anterior sides of the femora and tibiæ darker; the metatarsi at tip, and the larger part of the other tarsal segments darker The hind legs are unusually slender; the femora have a very long, slender basal portion which distally becomes only gradually incrassate, without distinct markings; their tibiæ likewise very slender and terminated on the inner side with two or three white bristles; rest of bristles of legs, black. Wings hyaline, in the female and sometimes in the male, the basal third is perceptibly darkened, veins blackish; the second submarginal cell equal in length to its peduncle, the second posterior not much elongated, the fourth pedunculate. The anterior intercalary forms a rather indistinct angle with that portion of the posterior cross-vein which closes the second posterior cell behind.

Type.—M. C. Z. One male specimen. The female mentioned in the note of the original description is also there.

Habitat.—D. C. (type); Del.; S. Ga.; Tex. The Delaware specimen is at the Am. Ent. Soc. of Phila; those from Georgia and Texas are at the National Museum.

Leptogaster testaceus.

Leptogaster testaceus Loew, Cent., II, 10, 1862.

? *Leptogaster rubidus* Wiedemann, Auss. Zwei., I, 533, 1828.

? *Leptogaster rubida* Williston, Biologia, Dipt., I, 299, 1901, (thinks *rubida* and *testaceus* may be the same).

♂ ♀ —*Length* 12 14 5 *mm* —Testaceus, polished Face whitish pruinose, mystax flavous occiput with a golden bloom and pale bristles Antennæ yellow, style slender, black, the third segment linear,—gradually tapering, not less than two times the length of the first two taken together Dorsum of a somewhat deeper color than the rest of the body, and highly polished, the posterior third, lateral margins, pleuræ, coxæ and scutellum, yellowish pruinose Abdomen pale testaceus, verging on the tergum, especially on the distal segments, into a dark brown, sometimes almost black In one specimen the tergum is darker brown and mottled with black Legs paler than body, aside from a subapical brown ring, often obsolete, on the hind femora, there are no darker markings claws black, empodia present Bristles are of the same color as the body except those on the tarsi which, for the most part, are black Wings hyaline, tinged with yellow, second submarginal cell longer than twice the peduncle, the first posterior moderately long, the fourth posterior with a short peduncle, the anal cell toward the margin narrowest

Type —M C Z A single female specimen in Loew's coltion There are two other females in Osten Sacken's collection

Habitat —N Y , Westville and Caldwell, N J , Pa , Southern Ga , Montreal (Chagnon), Canada, ? Yucatan, (Williston)

This species is easily recognized by its uniform yellowish-red color Described from four females and one male, including the type material

Dr Williston, in the Biologia, described, under *Leptogaster rubida*, a female from Yucatan He is in doubt whether *rubidus* of Wiedemann from South America is the same as Loew's *testaceus* From the description of this Yucatan specimen, I think it might properly be identified as *testaceus* As I have seen and know Loew's *testaceus*, I prefer to hold to it rather than place it a doubtful synonym under *rubidus*

Leptogaster virgatus.

Leptogaster virgatus Coquillett, Proc Ent Sco Wash , VI, 177, 1904

? *Gonypes nitidus* Macquart, Dipt Exot , 1, 2, 155, 1838

? *Leptogaster carolinensis* Schiner, Verh Zool -Bot Ges , XVI, 696, 1866

♂ ♀ —*Length* 9–13 *mm* —Easily recognized by the three polished stripes on the thoracic dorsum

Head black, face, front and occiput white, the mystax and fine hai of the occiput of the same color Antennæ yellow, style black Thorax reddish-brown, light grayish pruinose except a wide median and two lateral stripes which are polished and range from deep testaceous to black Abdomen black, brownish pruinose, the first segment and both ends of the following segments grayish pruinose Legs ranging from pale yellow to deep testaceous, front and middle pairs with a dark line along the anterior side of the femora and tibiæ Hind femora somewhat incrassate, a broad band before the apex and the apical half of the hind tibiæ brown, apices of all the tarsal segments yellowish-brown, empodia about half as long as the claws Wings hyaline, at apex narrowly gray fourth posterior cell with a long peduncle

Type—U S N M, Cat No 7,945 Type series consists of three female specimens

Habitat—Delaware Co, Pa (C W Johnson), D C (June 22), Carolina (Macquart), Tex (Belfrage) The type material is from Washington, D C, and Texas

Prof C W Johnson has in his collection two females and a male and female in coitu—all from Delaware Co, Pa—and there is one female without label in the collection of the Am Ent Soc of Phila They show a variation from a nearly testaceus mesonotum to one with a single large black vitta, up to those with three stripes on the mesonotum the stripes ranging from deep testaceous to black

DASYPOGONINÆ

TOWNSENDIA.

Townsendia Williston, Kans Univ Quart, iv, 107, 1895
Townsendia Williston, Biologia, Dipt, i, 307, 1901

"Very small species Head broad, much broader than high. Front very broad above, about three-fourths the width of the head, narrow below, the sides gently convex, only moderately excavated, nearly bare, with some bristles at the vertex and on the ocellar tubercle Faces narrow, with parallel sides, flat, much receding, not at all visible in profile, with a thin row of bristles on the oral margin, otherwise wholly bare Antennæ not as long as the head, situated near middle of head in profile, segment 1 shorter than segment 2, the latter about as broad as long, segment 3 longer than the first two taken together, gently tapering from near its base, style slender, divaricate, about one-half the length of the segment. Proboscis short Thorax moderately convex above, with bristles on the posterior part Scutellum with a row of thin bristles on its margin Abdomen elongate, its sides nearly parallel, moderately flattened, bare Legs moderately stout; the first two segments of all the tarsi a little incrassate Wings long, narrow toward the base, auxiliary cell narrow, the anal angle wholly wanting as are also the alulæ, discal cell long and narrow, the penultimate section of the fourth vein a little shorter than the ultimate section, the third vein from the discal cell, separating the third and fourth posterior cells, wholly wanting "

Type —Townsendia minuta Williston

This genus is remarkable for the size of its typical species The very broad front, receding face and the narrowness of the wings at the base are considered by its founder the most essential characters The confluence of the third and fourth posterior cells makes the separation of the species easy

Named in honor of Prof C H S Townsend

Townsendia niger n sp

♀ —*Length about* 4 5 *mm* —Body wholly black, the abdomen polished blue black legs dark yellowish red, wings brownish hyaline, entirely covered with microscopic pubes and beautifully violescent, the vein separating the third and fourth posterior cells wholly wanting, anal cell closed and petiolate

Face narrow with parallel sides, somewhat receding, without gibbosity, and not visible in profile, whitish pruinose mystax thin, white, confined to the oral margin which is some little distance above the short proboscis Front greatly widened above, as described in the generic description, whitish pruinose on the sides, more brownish on the middle ocellar tubercle but little elevated and bearing several black bristles, the anterior ocellus red Occiput grayish white pruinose, with sparse black bristles above Antennæ distinctly separated at base, situated a little above the middle of the head, black, basal segments subequal in length, with black bristles above and below, the second segment being much more robust and nearly as broad as long, the third segment longer than the basal segments taken together, gradually tapering from base, with a fine whitish pubescence, style distinct, rather stout, about half as long as the third segment, pubescent, and bearing at its tip a short bristle Thorax well arched, the dorsum subpolished, only faintly obscured by a dull bloom which, on the middle before and on the humeri, appears golden, and over the base of the wings when viewed from before, shining white; pleuræ brownish pruinose; the fine pile and few bristles of dorsum and on the posterior margin of scutellum black. Halteres dull yellowish-red. Abdomen polished, blue-black, slightly whitish pruinose on sides and at base and with whitish pile along sides. Legs dark yellowish-red, coxæ black with a whitish bloom; the femora darker than the tibiæ, the latter not banded with black, although in some cases with indications of such; tarsi reddish, terminal segment blackish. The arrangement of the most prominent bristles of the tibiæ and tarsal segments is peculiar; when viewed from above, each of the first four tarsal segments bears a prominent bristle on the middle of each side, those on the fourth segment being quite short; there are on each side of the tibiæ three or four bristles similarly placed and about as distant from each other as are the bristles of the several tarsal segments. There are other smaller bristles upon the legs, but the above mentioned are most prominent. Pulvilli present. Wings dark brownish hyaline, attenuated at base, allulæ absent; but four posterior cells present, the vein separating the third and fourth being gone; anal cell closed and petiolate; the auxiliary cell narrow.

Type.—American Museum. A single female

Habitat.—South Amboy, N. J.

One will notice that in general the above description agrees quite closely with that of *minuta.* As the habitat of the two species is so widely different (though not a real barrier to their identity), together with the fact that the description of *minuta* is very meager, and my specimen does not have the black thoracic stripes and has a different coloration of the legs, I have described it rather minutely as new. As the type is at the American Museum it will be easily accessible. I have not seen the type of *minuta.*

Townsendia minuta.

Townsendia minuta Williston, Kans. Univ Quart, IV, 107, 1895.

Townsendia minuta Williston, Biologia, Dipt., I, 307, Pl. V, fig. 19, 1895.

" ♂.—*Length* 3.5 *mm* —Black, front and face thickly white pruinose, mystax white. Antennæ black. Mesonotum opaque yellowish-white with a broad median stripe and a spot on each side, brown. Pleuræ thinly whitish pruinose. Abdomen polished black, the first segment whitish pruinose, the pile along the sides of the anterior segments white. Legs yellowish-red, the fore and middle femora above, the hind femora, except the base and tip, a broad ring on all tibiæ, and the tarsi, for the most part black Wings grayish hyaline "

Type —Dr F H Snow states that the type is not at the University of Kansas, although Williston's material is there

Habitat —Teapa in Tabasco, Mexico (H H Smith), N M.

Townsendia pulcherrima n sp

♀ —*Length* 3 5 *mm* —Head and thorax black, abdomen, except at tip, and the legs, reddish, wings attenuated at base without allulæ, and with but four posterior cells, halteres creamy white

Head black, face narrow, flat, without gibbosity, pale golden pruinose, the mystax white, confined to a thin row of bristles on the oral margin, front as in the typical species, narrow below, extraordinarily widened above, shaped as that of *minuta* is described to be, brownish pruinose, a spot on either side above the insertion of the antennæ and confluent with the margin of the eye and a much larger patch along the orbits upon the vertex and extending over slightly onto the occiput, silvery white pruinose ocellar tubercle rather broad, flattened on top and bearing two bristles on either side of the front above the lower pair of white spots are two black bristles, one situated above the other Antennæ situated a trifle below the center of the head, some longer than the head is high the basal segments subequal, the first a trifle longer, the second more robust, the third nearly one and one half times as long as the basal segments taken together constricted a little toward the base, enlarged beyond, rather obliquely truncated distally, style very short, distinct, equalling in width the third segment, a trifle more than half as long, and bearing upon its outer distally portion, a small forward directed spine which is nearly concealed by the dense microscopic pubescence which covers both the style and the third segment Proboscis short, polished black Thorax slightly gibbose in front, thence gradually receding to the scutellum dorsum and pleuræ thinly golden pruinose, on the dorsum showing an indistinct median stripe, and when viewed from above, four shining white spots, one on each humerus, and one on either side above the insertion of the wings, on either side of the dorsum there are two well developed black bristles, one presutural, the other postsutural, and before the former there is a patch of sparse black hair Scutellum quite large thick, thinly golden pruinose and fringed with short black bristles Halteres creamy white the trichostical bristles sparse and black Abdomen polished reddish, except the extreme base, last two segments, and the extreme lateral margins of the fifth and sixth segments, which are black, venter reddish, towards the tip, black, the very fine sparse pile of abdomen yellowish, circlet of spines of ovipositor black Legs, including the coxæ, yellowish-red all the tibiæ darkened, almost black in the middle, the hind pair slightly incrassate at tip, hind tarsi blackish. Entire legs, including coxæ, whitish pruinose; the coxæ most densely so, the femora and hind tibiæ the least; the tibiæ with short sparse pile and, together with the tarsi, with longer white outstanding bristles, arranged somewhat as in *Townsendia niger*, but on the tarsal segments situated nearer the tip. Claws reddish at base; pulvilli normal, pale. Wings hyaline, violescent, slightly darkened by the omnipresent microscopic pubes; attenuated at base, allulæ wanting; but four posterior cells present, the vein separating the third and fourth posterior cells being gone; anal cell closed and petiolate; the anterior cross-vein much nearer the base than the apex of the discal cell.

Type.—American Museum. A single female.

Habitat.—Montopolis, Travis Co., Texas, May 1, 1903 (W. M. Wheeler).

I have called this species *pulcherrima* because of the white pruinose spots of the dorsum and vertex which in certain lights appear most beautiful under the compound microscope. It is out of place in this genus because of its antennæ, but at present I know of no better place to put it. Aside from the antennæ, it agrees very well with the generic description of *Townsendia*.

ABLAUTUS.

Ablautus Loew, Cent., VII, 63, 1866.
Ablautatus Loew, Berl. Ent. Zeit., 1874, 377.
Ablautus Schiner, Verh. Zool.-Bot. Ges., XVI, 847, 1866; quotes orig desc.
Ablautatus Osten Sacken, West. Dipt., 289, 1877.
Ablautus Williston, Manual 1896, 54; adopts orig. form.

Small to rather medium-sized species easily recognized by the large claws and entire absence of pulvilli, peculiar arrangement of bristles on dorsum of thorax and legs, and the brushes on the last three segments of the front tarsi of the male.

Face and front comparatively narrow; face almost flat, without gibbosity, with a dense mystax reaching nearly or quite to the antennæ; front very little broader above; vertex but little depressed, the ocellar tubercle large and bearing a conspicuous tuft of hair and bristles; occiput with numerous bristles. Antennæ short; basal segments short, subequal, below clothed with conspicuous bristles, some of which often are half as long as the antennæ, on the upper side with shorter hair; third segment one and one-half times longer than the basal segments taken together, elongate, with a constriction a little before the middle, with a slight incrassation just beyond; style short, less than one-fifth the length of the third segment, cylindrical and bearing a terminal microscopic bristle. Eyes with the facets of the middle region very much enlarged. Thorax well arched, scutellum large; besides the usual clothing of hair and bristles, with conspicuous hair and bristles on the anterior part on either side of the median stripe; the median stripe divided by a row of fine bristles; the hair of the anterior part of dorsum and above base of wings sometimes nearly scale like. Scutellum with a row of long erect bristles on the posterior margin. Pleuræ nearly devoid of pile; trichostical hair long. Abdomen rather narrow, moderately convex, flatter in the female than in the male, gently tapering toward the tip, male hypopygium rather small, ovipositer with the usual circlet of spines; sides of the first segment with a few bristles and longer pile, remainder of abdomen, especially on the sides and the venter, with rather sparse short pile Legs of moderate length and stoutness, covered with much hair, which is characteristically depressed and beset with numerous erect bristles, not only on the tibiæ and tarsi, but also on the upper and posterior sides of the fore and the upper and anterior sides of the middle and hind femora. Claws remarkably long; pulvilli entirely wanting. Wings as in *Cyrtopogon;* all the five posterior cells wide open, the anal cell narrowly so; the small cross-vein little beyond the middle of the discal cell

Type.—Ablautus trifarius Loew.

SYNOPSIS OF SPECIES

1	Abdomen wholly black	2
	Abdomen reddish or yellow .	4
2.	Femora brownish, length 6–7 mm	**trifarius.**
	Femora black	3
3.	Tibiæ black	**mimus.**
	Tibiæ reddish-yellow	**rufotibialis.**
4.	Pleuræ for most part polished	**rubens.**
	Pleuræ wholly pruinose	**flavipes.**

Ablautus flavipes.

Ablautus flavipes Coquillett, Proc. Ent. Soc. Wash., VI, 178, 1904.

"♂ ♀.—*Length* 5–5.6 *mm*.—Black; abdomen except at base, halteres and legs, yellow; dorsum and thorax with distinguishable stripes, abdomen yellowish-gray pruinose, with three rows of black spots.

"Black; abdomen except at base, the halteres and legs, yellow; apices of the femora, of the tibiæ, and of the tarsi, also a vitta on the upper side of the front femora, brown; hairs of head white, bristles of lower side of first two segments of the antennæ and on the upper part of occiput, yellowish-white, hairs of the body white, bristles of thorax pale yellow. Abdomen densely yellowish-gray pruinose, usually marked with a median and lateral row of brown spots; hairs and bristles of legs white, the sides of the last three segments of the front tarsi of the male with cluster of black hairs, giving these segments the appearance of being dilated, the bristles of these segments are black; wings hyaline, veins chiefly yellow."

Type.—U. S. N. M., Cat. No. 7947. Three males and two females.

Habitat.—Los Angeles and San Diego Counties, Cal. (May, D. W. Coquillett); Alamogordo, N. M. (May 10, Am. Ent. Soc. Phil.).

The American Entomological Society Philadelphia possesses over twenty specimens collected at Alamogordo, N. M., May 10, 1902, which agree with the type material except that their legs are wholly yellowish, with only a trace in a few instances of a dark vitta on the front femora; as the legs of the type material are nearly wholly yellow, I consider these specimens only as a slight variation. I will append the following notes:

Front, occiput, dorsum of thorax, scutellum and mesopleuræ, yellowish-brown pruinose; the rest of the pleuræ and the occipital orbits grayish. Abdomen paler pruinose than the dorsum of thorax, in certain lights almost whitish pruinose; each segment of the male, and all except the last in the female, with a distinct blackish spot in the middle near the anterior margin; there are smaller dark spots on the sides of the same segments, but these in nature are not seen from above, at least not so in dried specimens, for the sides of the abdomen are curved under over the venter. The last segment of the female is polished black. The stripes of the thoracic dorsum are obsolete and the hairs on the anterior part and over the base of the wing seem almost scale-like.

Ablautus mimus.

Ablautus mimus Osten Sacken, West Dipt, 290, 1877

♂ ♀ —*Length* 7–8 *mm* —General coloring brownish-gray pruinose, abdomen with three rows of black spots, bristles on under side of the basal segments of antennæ, the thoracic dorsum and scutellum, brownish-yellow, legs black, densely beset with long recumbent white hair and long white erect bristles

General coloring brownish-gray pruinose, the occiput densely whitish pruinose, mystax white with a few black hairs over the oral margin, occiput with white pile Antennæ black Thorax grayish pruinose, with the usual three darker stripes on the dorsum, bristles on the underside of the basal segments of antennæ, dorsum and scutellum, all brownish-yellow Halteres honey yellow, trichostical pile white Abdomen grayish pruinose, with a series of rounded blackish spots along the middle of the abdomen, one at the base of each segment, larger black spots on the anterior corners of each of the same segments form two lateral series, the seventh and eighth segment in the male polished black, with white pile, the seventh segment in the female polished black Legs black, densely beset with rather long, recumbent white hairs, and long, white erect bristles claws black The last two segments of the fore tarsi of the male appear incrassate, because they are densely beset with black and yellow recumbent and closely packed short bristles, forming a kind of a brush, the end of which reaches considerably beyond the claws the under side of this brush is black, on its upper side it is mixed of black and yellow, the ends of the first three segments of the front tarsi are armed with strong bristles or spines, which are black, with a yellowish root a couple of such spines in the middle of the first segment In the female the front tarsi are simple, and all the spines upon them are white, like all the other spines on the legs Wings very hyaline, veins black

Type —M C Z One male and two females

Habitat —Crafton, near San Bernardino, Southern California, in March (Osten Sacken), Ariz (National Museum)

Osten Sacken states that he captured this species on sandy soil in company with *Lestomyia sabulonum*, which it seems to mimic, as its body is almost exactly of the same color

Ablautus rubens.

Ablautus rubens Coquillett, Proc Ent Soc Wash, VI, 178, 1904 (Pl XII, fig 4)

" ♀ —*Length* 6 *mm* —Reddish-yellow, the hair and bristles whitish, several on the tarsi black, most numerous on the hind ones, head, thorax and scutellum opaque, yellowish-gray pruinose, the pleuræ, except the anterior portion, the under side of the scutellum, and middle of the metanotum polished; abdomen polished, a pair of small gray pruinose spots on the second and third segments; sides of abdomen and the venter yellowish-gray pruinose; wings hyaline."

Type.—U. S. N. M., Cat. No. 7948. A single female specimen.

Habitat.—Wash. (Prof. O. B. Johnson).

Ablautus rufotibialis n. sp.

Black, brownish-gray pruinose; on the front, occiput, sides of thoracic dorsum, on the pleuræ and metathorax, more grayish-white, and in some lights, almost silvery white pruinose; mystax without any black hair on the oral margins; tibiæ and hind tarsi reddish, not black; abdomen with three rows of black spots.

I have three females from Ysleta, Texas, which are quite closely related to *mimus*, but differ in being some larger, and all the tibiæ are yellowish-red, except at the extreme base and tip, as also, in part, are the hind tarsi and, in some cases, the other tarsi as well The pile and bristles of the entire body is characteristic of the genus, wholly white, with the exception of a few yellowish bristles on the occiput and thoracic dorsum. In one specimen nearly all the bristles of the dorsum are yellowish. The mystax is wholly white, with no black hairs on the oral margin; there are no black hairs on the basal segments of the antennæ above as in *mimus*. The eyes are bronze, mottled and streaked with black; there is a faint trace of this streaking of the eye in one of Osten Sacken's type specimens of *mimus*, and it may prove that this coloration has been intensified by the rather poor condition of my specimens. The thoracic dorsum is more brownish pruinose than the rest of the body, with a dark median, but no distinguishable lateral stripes; the median stripe does not appear to be divided by a pale stripe or line, but is bisected by a line of short white bristles. The patches of white hair and bristles on the anterior part of the dorsum on either side of the geminate stripe appear more dense than in *mimus*. Halteres reddish; the trichostical hair white. Abdomen as in *mimus*, the lateral spots are considerably larger; the median spots are small in comparison with the lateral spots and located more near the center of the segment. In all the specimens the last two segments of the abdomen are greased. On the basal segment there is a black median spot, but none on the sides as on the following segments. Legs, including the coxæ, black; the tibiæ, except at extreme base and tip, yellowish-red; the hind tarsi are likewise reddish, the terminal segments being nearly black; the other tarsi show more or less traces of reddish, but on the whole are more blackish; claws wholly black; hair and bristles of legs characteristic, wholly pure white Wings hyaline, in certain lights milky, with deep greenish and purplish reflections; veins black, the axillary and first longitudinal and the others at base of wing, yellowish.

Type.—Am. Ent. Soc. Phil. Three female specimens.

Habitat.—Ysleta, Texas (April 2, 1902).

Ablautus trifarius.

Ablautus trifarius Loew, Cent., VII, 63, 1866.

Ablautus trifarius Osten Sacken, Biologia, Dipt., I, 168, 1887.*

♀.—*Length* 6–7 *mm.*—Grayish pruinose, on the dorsum more brownish; abdomen with three rows of black spots; legs wholly brownish yellow.

Grayish pruinose, head of the same color; bristles of the basal segments of the antennæ, vertex, occiput, and thoracic dorsum, scutellum, sides of first abdominal segments and of the legs, wholly yellowish Face densely clothed with white pile reaching to the antennæ, black only on the oral margin; beard white, dense, and extending well upwards; the basal segment of the black antennæ with rather short black pile Dorsum with the characteristic pile and bristles, the stripes nearly obsolete, dark, the geminate stripe divided by a grayish line and much abbreviated behind, the lateral stripes hardly noticeable, interrupted. Scutellum densely clothed with a grayish bloom which, when viewed from behind or in certain lights, appears shining white, its margin armed with the closely set yellowish bristles mentioned above. Abdomen black, grayish pruinose, opaque, each segment beginning with the second with a median and two lateral rather small black spots on the anterior margin, one median, and one on each side; the eighth segment is wholly black; pile short, white, backward directed, chiefly on the sides of the segments. Legs brownish, tibiæ and tarsi much lighter; closely covered with long recumbent white hair and long erect yellowish bristles; on the tarsi the bristles are part black. Claws wholly black. Wings pure hyaline, veins black

Type.—M. C Z. A single female in rather poor condition.

Habitat.—California (type).

OSPRIOCERUS.

Ospriocerus Loew, Cent., VII, 51, 1866.

Ospriocerus Schiner, Verh. Zool-Bot. Ges, 1866, 846; quotes orig. desc.

Ospriocerus Coquillett, Ent. News, IX, 37, 1898; synopsis of species.

Ospriocerus Williston, Biologia, Dipt, I, 303, 1901; notes.

Large elongate black species, with or without red on the abdomen. Head narrower than the thorax, almost as high as broad, with the vertex but slightly depressed. Antennæ elongate, the first segment not less than three times the length of the small cup-shaped second, the third, more than the

---

* A specimen from N. Sonora, Mex., which he doubtfully refers to this species.

length of the first two segments taken together and bearing on the inner distal half a linear depression; terminal style obsolete. Face narrower above, broader and evenly swollen on the lower half; mystax composed almost entirely of long rigid bristles extending over the swollen portion of the face, vibrissæ composed of short hairs confined to the middle of the face and reaching nearly to the antennæ. Ocellar tubercle not prominent, with short bristles; frontal orbits with long, forward-directed bristles, and the occiput with numerous bristles, not confined to the occipito-orbital margins. Prothorax well clothed with bristles. Dorsum of mesothorax with short bristly hair, and with bristles on the humeri, posterio callosities and lateral margins,—these last forming an irregular band extending from before the base of the wings upwards and backwards to above the posterior callosities; scutellum with a fringe of bristles on its posterior margin. Pleuræ nearly bare; trichostical bristles present. Abdomen elongate, everywhere with short sparse microscopic hair; segments 1 and 2 with a lateral patch of bristles. Male genetalia small, not at all club-shaped. Legs robust, everywhere with short hair and longer sparse bristles which are much more abundant on the front and middle tibiæ, front tibiæ without a terminal claw-like spur; coxæ clothed with stout bristles. Wings proportionately broad, the first posterior cell wide open, the fourth closed a short distance before the margin, the anal closed in the margin.

Type.—Dasypogon æacus Wiedemann.

Ospriocerus is very closely related to *Stenopogon*, but differs from it chiefly in the third segment of the antennæ being longer, linear and destitute of a terminal style.* Aside from *Stenopogon æacidinus* Williston, its species are secondarily characterized by their general black color usually relieved by red or yellowish-red upon the abdomen.

SYNOPSIS OF SPECIES.

1. Abdomen largely yellowish-red . 2.
Abdomen wholly black **minos.**

---

* *O. diversus* Williston, has a minute style.

2. Venter of abdomen wholly black. 3.
Venter of abdomen largely yellow . .. **ventralis.**
3. Abdomen with white pruinose spots . 4.
Abdomen without pruinose spots. **abdominalis.**
4. Females*: thorax and legs chocolate colored, last two segments of abdomen black .. . . **eutrophus.**
Males: thorax black, usually yellowish above **rhadamanthus.**

Ospriocerus abdominalis (Pl. VII, fig. 5).

Asilus abdominalis Say, Long's Exped., App., 375; 1824, Comp. Works, I, 255.

Dasypogon æacus Wiedemann, Auss. Zw., I, 390, 1828.

Dasypogon spathulatus Bellardi, Saggio, II, 82, pl. I, fig 9, 1861.

Ospriocerus æacides Loew, Cent, VII, 51, 1866.

Ospriocerus æacus Osten Sacken, West Dipt, 290, 1877.

Ospriocerus abdominalis Coquillett, Ent. News, IX, 37, 1898.

Ospriocerus abdominalis Jones, Trans. Am. Ent. Soc. XXXIII, 275, 1907 (locality note).

Ospriocerus abdominalis Howard, Insect Book, 1902, Pl. XIX, fig. 5.

♂ ♀ —*Length* 13 5–19 *mm.*—Black, subpolished; abdomen orange-red above, without white pruinose lateral spots; wings blackish.

Face and occiput silvery white pruinose; mystax sparse, composed of long rigid bristles covering the swollen lower half of the face; vibrissæ confined to the middle of the upper portion of the same, composed of the short, downward directed bristly hair. Antennæ black, the depression in the inner distal half of segment three very distinct. Bristles of the vertex of good size, forward directed; occiput, prothorax and coxæ very bristly Dorsum subpolished, often covered with a thin hoary bloom Segment 1 of the abdomen, base of segment 2, lateral margins of the following segments, genetalia and venter, black; posterior margin of the second and the following segments above, yellowish-red or red The female differs from the male in that the last two segments of the abdomen are polished black. Legs wholly black, with many but short bristles; claws black, red at base Wings blackish, subopaque, with steel-blue reflections; fourth posterior cell closed and petiolate. Clothing of the entire body deep black, the fine hair upon the red portion of the abdomen alone being yellowish-red.

Type.—Lost.

---

* This does not include the *eutrophus* female from Kansas, or the two males with the reddish thoracic dorsum at the National Museum mentioned below.

Habitat.—Squaw Creek, Wash.; Lombard, Mont. (June 26, elev. 4,000 ft., R. A. Cooley); Snake Co., Idaho; Sioux Co. (P. R. Jones), Nebr.; Ft. Collins (July 17, 29), Colorado Springs and Spanish Peaks, Col.; Garden City, Ks. (July); N. M.; Round Mts., Tex.; Car Canyon, Huachuca Mts., Cochise Co., Ariz. (Aug., H. Skinner); Cal.

Judging from its presence in many collections, this seems to be a common species throughout our western and southwestern States. In both sexes the red of the second segment of the abdomen is variable in extent and often extends over the anterior portion of the sixth segment in the female. One male has no red on the second segment and only a little on the anterior margin of the seventh. Several specimens from Prof. R. A. Cooley, of Bozeman, Montana, have the tergum much deeper red than most of the specimens which I have seen.

Ospriocerus eutrophus.

Ospriocerus eutrophus Loew, Berl Ent. Zeit., 1874, 355

Ospriocerus eutrophus Howard, Insect Book, 1902; Pl. XIX, fig. 9.

Ospriocerus eutrophus West Dipt., 1877, 290.

♀.—*Length* 21.5–22 *mm.*—Black, thorax usually of a dark chocolate color. Face, excepting the gibbosity and a triangular area above with its apex at the base of the antennæ, wholly white pruinose Posterior portion of the second abdominal segment, and the three following segments, excepting their lateral margins, red or yellowish-red; the remainder of the abdomen black; posterior lateral margins of the second, third and fourth segments white pruinose. Legs black, the front tibiæ, together with the first segment of their tarsi, with compact glistening pile Wings black. All the bristles of the body and legs black.

Type.—M. C. Z. Three female specimens.

Habitat.—Texas; Kansas.

This species resembles *abdominalis* but the larger size proportionately smaller, and at its end, slender, abdomen and the white pruinose lateral margins of the second, third and fourth abdominal segments of *eutrophus* readily separate them. Of the three females in Loew's collection, one specimen has the thorax dead black, and so accords with the original description. The thorax of the other two, and also of other specimens which I have seen, is a dark brown, which gives to these specimens a much richer appearance. The white pruinose spots do not appear to cross the posterior borders of the segments as Loew says, but are recognizable only on the posterior lateral margins. There is one famale in Osten Sacken's collection from Kansas labeled "*eutrophus*" which agrees with the type specimens except that the thoracic dorsum is yellowish-red with a trace of dark median line.

Osten Sacken in his "Western Diptera," page 291, suggests that *rhadamanthus* may prove the male of *eutrophus*, and indeed this has seemed probable, inasmuch as hitherto they have been represented in collections by males and females respectively. But there are now at the National Museum two males which are of the same size as the females of *eutrophus*, and agree with the type material except that they have a reddish thoracic dorsum. In this last respect they agree with *rhadamanthus*, but their larger size and general appearance make it easy to separate them. I am inclined to think that *eutrophus* is distinct from *rhadamanthus*. This will be a question for discussion until more collecting has been done. At present *rhadamanthus* is represented only by three males at the M. C. Z. *Eutrophus* is found, aside from the type material, in small numbers in the collections of the National Museum, the American Entomological Society, the University of Kansas and that of Prof. C. W. Johnson.

Ospriocerus minos.

Ospriocerus minos Osten Sacken, West. Dipt., 291, 1877

♂.—*Length* 17–18 *mm.*—Altogether black; wings blackish. The face is slightly grayish pruinose; the abdomen is more cylindrical, less flattened than in the male of *abdominalis*, and the last antennal segment seems a trifle longer In other respects this species is like *abdominalis*

Type.—M. C. Z. A single male specimen.

Habitat.—Golden City (July 3, A. S. Packard), Col.

There is nothing to add to the above description. I have referred two females from Colorado belonging to the American Entomological Society to this species.

Ospriocerus rhadamanthus.

Ospriocerus rhadamanthus Loew, Cent., VII, 52, 1866.

Ospriocerus rhadamanthus Osten Sacken, West. Dipt., 1877, 290.

♂.—*Length* 20 *mm.*—Black, wings of the same color; face, front and occiput wholly white pruinose; the thoracic dorsum in most specimens reddish-yellow, with a large central area black, in others wholly pitchy black or black; pleuræ, pectus and scutellum always black. Abdomen reddish-yellow; the first and second segments, except the posterior margin of the latter, the "semi-ovate lateral spots" of the following segments, the entire venter and hypopygium black; the posterior lateral margins of segments 2–5 white pruinose Clothing of entire body black, except the yellowish-red hair on the reddish portion of the tergum of the abdomen. Legs black; tibiæ and tarsi pitchy black, almost a dark testaceous. Wings black, larger and broader than in *abdominalis*.

Type.—M. C. Z. Three male specimens without locality label and in rather poor condition.

Habitat.—Pecos River; Western Tex,; N. M.

The conclusion from Loew's description that there are black spots on the sides of the abdominal segments is in a sense misleading. Separate spots, there are none. The black on the sides of the segments, as I find by examining the type material, is only an encroachment of the black of the venter upon the sides of the segment. The same is found in *eutrophus*, only there the black encroaches evenly, while in *rhadamanthus* the black extends upward to a greater extent in the middle than elsewhere—hence Loew's "maculis lateralibus singulorum semiovatis nigris, angulos posticos non attingentibus." For some unaccountable reason, Loew did not embody a description of the white pruinose spots on the posterior lateral angles of segments.

Ospriocerus ventralis.

Ospriocerus ventralis Coquillett, Ent. News, IX, 37, 1898.

Ospriocerus ventralis Howard, Insect Book, 1902, Pl. XIX, fig. 14.

♂ ♀.—*Length* 20–23 *mm.*—Venter largely yellow, the entire abdomen yellow, except the first segment, base of the second, and the genetalia, which are black; in the female the apex and sometimes the under side of the last segment is black. Pulvilli and bases of the tarsal claws, yellowish; all the hairs and bristles black, except the short hairs of the abdomen, which are chiefly yellow. Wings blackish, with steel-blue reflections.

Type.—U. S. N. M. Cat. No. 4253. The type consists of three males and two females.

Habitat.—Arizona (type); Car Canyon, Huachuca Mts., Cochise Co. (Aug , H. Skinner), Ariz.

This species differs from *abdominalis* in no respect except that the venter is largely yellow and there is no black upon the lateral margins Mr Coquillett writes that the venter is sometimes wholly yellow, while in other specimens the last two segments, except the base of the penultimate, are black There are six specimens of this species in the collection of the Am Ent Soc which Dr Skinner told me were collected, so far as he could remember, at the same time and under the same conditions as were specimens of *abdominalis* This, together with the fact that the Brooklyn Institute possesses a specimen which has the venter black except the base of each segment, leads me to wonder whether *ventralis* may not some day be proved to a variety of *abdominalis*

Prof J M Aldrich writes that the species of *Ospriocerus*, *Stenopogon*, *Deromyia* and *Saropogon* bite most viciously when caught and held between the fingers, jabbing in a most effective manner with their sharp proboscis, the resulting sensation being like that of a bee sting, only does not last so long The writer has had the same experience with *Deromyia* in Flordia Prof Aldrich says that he has had no other Asilids or other flies to bite under similar circumstances

In speaking of the distribution of *Ospriocerus* and *Stenopogon*, Prof Aldrich states that they do not occur in eastern South Dakota, but are, in going westward in the State, first met with in the center of the State, at the beginning of the more arid regions, and that in northern Idaho specimens of these species are rare except in the low altitudes of Lewiston and vicinity, where more arid conditions exist than at Moscow

STENOPOGON.

Stenopogon Loew, Linnæa Ent , II, 453, 1847
Stenopogon Schiner, Fauna Austr , I, 127, 1862
Scleropogon Loew, Cent , VII, 45, 1866
Scleropogon Schiner, Verh Zool -Bot Ges , 1866, 846, quotes orig desc
Stenopogon Coquillett, Pr Ent Soc Wash , VI, 179, 1904

Usually species of medium to large size Front tibiæ without terminal claw-like spur, body elongate Head narrow, rather higher than broad; face very small, narrow above, broader and swollen below, in large part covered with long thick hair or bristles; front small, of about equal width throughout, vertex little depressed, ocellar tubercle not prominent; eyes very high in proportion to width. Antennæ approximate, segment 1 cylindrical, twice or nearly twice as long as the second, third as long or longer than the first two together, if elongate and of equal width or elongate oval, with a bristle-like style; or if, as in most typical species, elongate with an excision on the distal half, thus in certain positions causing the segment to appear distinctly narrowed toward the tip from about the middle, with a short thick distinct style. Thorax moderately arched, variously clothed above with hair or bristles, always with bristles on the prothorax, on the lateral margins and posterior portions and scutellum; hypopleura with or without pile or bristles. Abdomen elongate, cylindrical, moderately bare, the male genitalia proportionately small. Legs long and moderately slender, hind tibiæ not thickened at tip, the femora more or less thickened, the underside more or less bristly, especially the fore pair. Five posterior cells present, the first and fourth open or closed, often varying in this respect in specimens of the same species; anal cell narrowly open or closed.

Type.—*Stenopogon subaudus* Loew and *Scleropogon picticornis* Loew.

The genus *Stenopogon* was established in 1847. In 1866, Loew established *Scleropogon* for the California species, *picticornis* of which he had but a single specimen if I may judge from the type material at the Museum of Comparative Zoology. In establishing *Scleropogon*, he states that Scleropogons, especially in their markings, are like Stenopogons, but they differ from them in having the face and front much narrower, the third segment of the antennæ shorter, the style longer, the first posterior cell closed before the margin of the wing, and the third extraordinarily dilated. As Mr. D. W. Coquillett states (loc. cit.) all of these are "relative characters which are seldom alike in any two species, and many of the characters mentioned are found to vary considerably in the different specimens of the same species." If an attempt is made to separate these two genera by strict adherence to the stated characters confusions result. Among the species listed under *Stenopogon* in Aldrich's Catalogue three different kinds of antennæ are found. The most typical is that possessed by *latipennis* and *consanguineus*, of which the third segment is elongate, somewhat wider at the middle, and bearing a distinct excision on the inner side from near the middle to the tip (not shown in Pl. III, fig. 1), and with a comparatively short, thick, but distinct style, itself terminated by a fine, scarcely perceptible bristle. A second kind is that possessed by *inquinatus*, *modestus* and *morosus*, of which the third segment is elongate, of equal width throughout, does not bear an excision, and is terminated by a bristle-like style fully half as long as the segment itself. A third kind is that possessed by *alibasis* and *nigritulus* of which the third segment is more nearly oval and bears a bristle-like style about one-half as long as itself. This last style of antennæ is that which Loew ascribes to the genus *Scleropogon* and is possessed by *helvolus*, *picticornis* and *cinerascens*. The last two groups are very closely related from a structural standpoint The first and fourth posterior cells of these last three species are more frequently closed, although specimens are found in which they are narrowly open. Among the more typical *Stenopogons* these same cells are more frequently open, though often narrowed, closed, and even petiolate.

It is, therefore, evident that *Stenopogon* and *Scleropogon* cannot be separated by the antennæ or the wing venation. The question arises by what character can they be separated? It has been stated* that a comparison of specimens of *picticornis*, with Italian specimens of *sabaudus* resulted in the firm conviction that the most pronounced difference existing between the two genera is to be found in the nature of the hypopleura, which is bare in *sabaudus*, but nearly covered with bristles and hairs in *picticornis*. My observations lead me to believe that this is a character as little to be relied upon as those of the antennæ and wings, for from the perfectly bare hypopleura of *breviusculus*, *jubatus*, *nigritulus*, etc., can be found gradations from a hypopleura with a very slight amount of pile to one with well-developed bristles such as that of *picticornis*. It is significant that a number of species, such as *longulus* and *consanguineus*, good *Stenopogons* in other respects, have a small amount of pile on the hypopleuræ. Consequently, having failed to find any character or set of characters, by which the genera can be satisfactorily separated, I have made *Scleropogon* a synonym of *Stenopogon*. I am confident, however, that generic subdivisions can well be made when carefully collected material is brought together.

---

* Coquillett, Pr. Ent. Soc. Wash., VI, 179.

This genus is abundantly represented in our western plains and in California.

SYNOPSIS OF SPECIES *

1 Hypopleura bare 2
Hypopleura with hair or bristles 7.
2. Sternopleura with a tuft of long fine pile 3
Sternopleura without such a tuft, though usually with some pile. 6
3 Pile and bristles of thoracic dorsum wholly dull yellowish, the posterior portion of the dorsum unusually bristly **brevisculus.**
Pile and bristles of thoracic dorsum, especially along the middle line, black 4
4 Black, wings black, white at base **jubatus.**
Not as above 5
5 Abdomen above with a reddish-yellow vitta, sometimes variable in extent **gratus.**
Abdomen without such a vitta **californiae, obscuriventris.**
6 Length 10–13 mm, third segment of antennæ more oval **albibasis, nigritus.**
Length over 16 mm; third segment of antennæ elongate. **inquinatus, morosus, modestus.**
7 Third segment of antennæ elongate, style short, thick, sometimes longer and more slender; first posterior cell more frequently open 8.
Third segment of antennæ more oval, style bristle-like; first posterior cell more frequently closed 12.

---

* This key does not include *ochraceus* or *similis*, which I have never seen

8. Decidedly black species, with or without red on abdomen; the latter not obscured by grayish bloom .. . 9.

More reddish species, or if black, with ground color of abdomen obscured by a bloom. 10.

9. Abdomen reddish-yellow, the base, venter, last two segments of female and genitalia of male, black **æacidinus.**

Wholly black, abdomen polished black **nitens.**

10. Southeastern species; reddish-yellow, abdomen quite slender, subpolished; wings broad, uniformly brownish or blackish **subulatus.**

Western species 11

11. Abdomen unusually slender, wings longer and narrower. **longulus.**

Abdomen less elongate, wings shorter and usually broader. **consanguineus, latipennis, pumilus, tenebrosus.**

12. Length about 15 mm ; black, but wholly and densely grayish-white pruinose; wings hyaline **cinerascens.**

Length 20–23 mm.; species not grayish-white in appearance .. 13.

13 Chamois-leather yellow species; abdomen proportionately long and slender, without black fasciæ.. **helvolus.**

Abdomen less elongate, yellowish-gray pruinose, in greased specimens the segments showing black with posterior margins and venter brick-red **picticornis.**

Stenopogon gratus.

Stenopogon gratus Loew, Cent , X, 31, 1872

Stenopogon univittatus Loew, Berl Ent. Zeit , 1874, 358

♂ ♀.—*Length* 20 *mm* —Black; bloom of thorax dull yellowish-brown; mystax, pile and bristles of whole body pale, except on the front, along the median line of the thoracic dorsum, and on the hypopygium where the clothing is black; abdomen polished, slightly grayish pruinose on the sides, and along the median line marked with more or less broad reddish-yellow vitta extending from the second segment to the tip; legs yellowish, the front and hind femora, except their apices, a spot on the middle femora and the apical half of the hind tibiæ black; wings slightly tinged with black, the basal third, excepting the edge of the costa, in the male, milky white, mesopleuræ and hypopleuræ wholly bare, the sternopleuræ with a tuft of long fine hair

Black; head grayish pruinose, clothed everywhere with sordid white bristles and pile, the beard very fine and dense, hair along frontal orbits, on ocellar tubercle, and on basal segments of antennæ black; on the latter sometimes yellow. Palpi black with pale hair. Antennæ black, base of third segment sometimes slightly yellowish; the style about one-half as long as the third segment. Thorax dull yellowish-brown pruinose, the three usual stripes showing only very faintly; the pile and bristles on the lateral margins, posterior callosities, scutellum and pleuræ entirely pale except the hair on the obscure lateral stripes, and the denser hair and bristles extending from the pronotum to the base of the scutellum along the median stripe, which are wholly black; the hair along the median stripe forming a crest. The sternopleuræ with a tuft of long soft pile, the trichostical pile or bristles wholly wanting, thus leaving the hypopleuræ bare. Abdomen black, subshining through a very thin covering of gray bloom; all the segments above, beginning with the second, adorned with a reddish-yellow longitudinal vitta; venter reddish; the last two segments of the female polished black, each with a single reddish spot above; hypopygium black, with black pile. The legs wholly pale pilose, the black fasciæ of the middle femora are on the proximal two-thirds. The wings tinged with black or fuscous, the basal third, excepting the costa, in the male, milky white, in the female as usual; the fourth posterior cell closed or open; the first often considerably narrowed.

Type.—M. C. Z. A male specimen. There is a female homotype in the collection of the University of Kansas.

Habitat.—California.

The female homotype agrees perfectly with the male as regards the extent of the reddish-yellow vitta of the abdomen. I believe, however, that this vitta will be found to be variable. I have seen two other specimens from California which I believe to be this species, in which the vitta broadened out so as to cover nearly the entire tergum.

Stenopogon californiæ.

Dasypogon californiæ Walker, List, II, 322, 1849.
? *Stenopogon obscuriventris* Loew, Cent., X, 30, 1872.

♂ ♀.—*Length* 16–21 *mm*.—Polished black of body more or less obscured on thorax and female abdomen; pile and bristles of face, occiput, posterior callosities, scutellum and legs varying from deep fulvous to pale straw. Wings tinged with brown except the posterior angles, which are milky white; female wings without, or with but slight trace of milky white color. Basal two-thirds of the front and middle, and the basal three-fourths of the hind femora black; rest of legs wholly yellow.

Face thinly clothed with very fine depressed golden pile, which in certain lights has a silvery reflection; front and occiput yellowish pruinose. Proboscis, palpi and antennæ black. Third segment of antennæ slender, about one and one-quarter times the length of the first two taken together; style prominent and one-third the length of the third segment. The first two segments of the antennæ, the palpi, the facial gibbosity and the occiput densely clothed with pile and bristles, varying from deep fulvous to pale yellow. Weak bristles of the frontal orbits and the ocellar tubercle black Thorax thinly brownish pruinose, the prothorax clothed with dense light pile the dorsum of the mesothorax with a median geminate dark stripe, not pronounced in all specimens, the pleuræ bare, except for a tuft of fine yellow pile on the sternopleuræ There is no pile or bristles in front of the pale halteres Bristles on the anterior two-thirds of the thorax short and chiefly black, those on the posterior third longer, and about equally divided between black and fulvous, except for a row of stout bristles in front of the origin of the transverse suture and extending backwards over the posterior callosity, which are wholly fulvous Bristles of scutellum fulvous Abdomen polished black, often obscured somewhat in the male, and quite perceptibly in the female, except on the last two segments, by a grayish bloom, but in the male never losing the polished black color The anterior and posterior margins of the segments 1–5 with lighter pruinose cross bands not at all prominent, entire male abdomen with fulvous pile, which is quite long in the proximal portion, but becoming shorter and depressed distally The pile of the female abdomen is not as pronounced Male genitalia red, in two specimens black the last, and often the last two segments of the female abdomen are red, as are also the spines of the ovipositor Legs deep yellow except the basal thirds of the front and middle and basal three fourths of the hind femora, which are black pile and bristles wholly yellow pulvilli yellow, claws black, yellow at base Wings with a dark tinge except the proximal portion of the anal cell and the squama in the male, which are milky white, first posterior cell slightly narrowed at the margin, fourth posterior cell wide open, anal cell open

Type—British Museum Type of *obscuriventris* is at the M C Z

Habitat—Lake Tahoe and Webber Lake, Cal, July 19 (Osten Sacken), Summit Sierra Nevada, Sisco, Cal, 6,000 ft, Beaver Creek Hills, Beaver Co, Utah

Described from thirteen males and twelve females, seventeen of which were collected by Baron Osten Sacken and are at the M C Z, three at the Am Ent Soc of Phila, three at the Brooklyn Institute, and two at the Massachusetts Agricultural College

Stenopogon jubatus.

Scleropogon jubatus Coquillett, Invertebrata Pacifica, I

♂ *Length* 20 *mm*—Black, the abdomen polished, clothed with comparatively long and fine hair, thoracic dorsum with sordid white hair and bristles on the sides, but from the pronotum to the scutellum with a broad median crest of black hair and bristles, legs marked with yellow, wings blackish, in the male the basal portion milky white

Face silvery white pruinose with long black bristles, bristles of front and a patch on the occiput directly behind the vertex black, the remaining bristles and pile of the occiput and the pile of the beard, proboscis and palpi pale Proboscis and palpi polished black Pronotum wholly clothed with comparatively fine hair Mesonotum with a broad median crest of black hair and bristles extending from the pronotum to the scutellum, short in front, longer behind the lateral margins, including the humeri and posterior callosities, with sordid white hair and bristles, scutellum with a fringe of black bristles, the sternopleuræ with a tuft of long pale pile the hypopleuræ entirely bare Abdomen, including the genitalia, polished black, with comparatively long, fine, sordid white or yellowish pile, longer on the basal segments and venter Legs polished black, the tips of the front and middle femora, the basal half of their tibiæ, the basal fourth of the hind tibiæ and the front and middle tarsi, except the bases of their several segments, yellowish the entire legs, including the coxæ, with sordid yellowish white hair and bristles, pulvilli pale, claws black, yellowish at base Halteres yellowish red Wings uniformly blackish, the basal, anal and axillary cells, except distally, milky white in the male, the first and fourth posterior cells narrowed but open

Type —National Museum

Habitat —Claremont, Cal

I have not the original description, the above was drawn from a partially greased specimen, with the antennæ missing, kindly loaned me by Mr Coquillett It is such a unique species it will be readily recognized

Stenopogon breviusculus (Pl XII, fig 3)

Stenopogon breviusculus Loew, Cent , X, 28, 1872

♂ ♀ —*Length* 15–19 *mm* —Quite readily separated from those species in which the hypopleura is bare and the sternopleura has a tuft of fine hair, by the unusually bristly appearance of the lateral margins and posterior callosities of the thoracic dorsum, by the three brown dorsal thoracic stripes, separated by very pale, almost grayish-white bloom, which also narrowly divides the median stripe, and, when when viewed from above, appears along the lateral margin above the dorso pleural suture

The first segment of the antennæ, often the first two, reddish the third segment about one and three-fourths times as long as the basal segments, black, of nearly equal width, not excised within distally, style about one third as long as the third segment Legs reddish, the femora above, except at apex, black the black of the hind femora often covers the entire anterior as well as the upper surface; tibiæ and tarsi wholly reddish-yellow; the legs wholly clothed with, and the ground color partially concealed by, closely appressed dull yellow hair; the bristles entirely sordid white. Face and occiput light yellow pruinose; the palpi and proboscis black, bristles of face, palpi, proboscis, lower occiput and coxæ pale straw-colored, those of the antennæ, vertex, upper occiput and dorsum more yellowish. Entire prothorax with thick bristles, pale straw below, more golden above. Mesonotum blackish, the humeri reddish; the hairs on the anterior portion short, pale; dorsum otherwise as above described. Scutellum with pale bristles. Abdomen of male blackish, the genitalia and the posterior lateral margins of the segments obscurely reddish, venter reddish; the color of the abdomen partially obscured by the bloom and close lying dull yellowish pile Wings hyaline, veins brownish, the costa and veins at base yellowish, the first and fourth posterior cells open.

Type.—M. C. Z.

Habitat.—Cal. (type); Pasadena Cal. (J. M. Aldrich).

Stenopogon nigritulus.

Stenopogon nigritulus Coquillett, Proc. Ent. Soc. Wash., VI, 179, 1904.

♂ ♀.—*Length* 10–13 *mm.*—Black; the head and thorax rather densely, the abdomen more thinly, grayish-white pruinose; the bloom of the thoracic dorsum more brownish, with traces of a median geminate stripe The first two segments of the antennæ, halteres, genitalia and legs, except the coxæ, and a vitta on each femur, reddish-yellow; the hairs and bristles of entire body and legs whitish. The third segment of the antennæ comparatively short, more oval and hardly three times as long as the bristle-like style. Mesopleura and hypopleura bare, the mesopleura without a tuft of long soft pile, but with a very small amount of inconspicuous pile. Wings hyaline, veins brown, the first and fourth posterior cells broadly open.

Type.—U. S. N. M., Cat. No. 7949. Three male and four female specimens collected by Mr. D. W. Coquillett.

Habitat.—Los Angeles and Kern Counties, Cal. (July, type); S. B. Mts., Cal. (July 28, W. M. Wheeler).

Stenopogon albibasis.

Stenopogon albibasis Bigot, Annales, 1878, 422.

♂.—*Length* 12 *mm*—Translation.—Fulvous, third segment of the antennæ black, face black; palpi black with whitish pile; mystax and beard whitish. Thoracic stripe geminate, abbreviated posteriorly and on both sides with a large black oblong spot; pectus black, halteres pale testaceous, coxæ with whitish pile, pulvilli testaceous, wings pale cinereous, at the base broadly whitish

Third segment of antennæ rather short, elongate oval, style less than half as long Fourth posterior cell sessile, the anal open within (entr' ouvertes) Wholly tawny, the tips of the second and third segment of antennæ and the palpi black, the latter with whitish pile, face black, front black, with light brown pile, occiput with some yellowish bristles, mystax and beard whitish Thoracic dorsum with two contiguous longitudinal stripes, attenuated behind and abbreviated above the insertion of the wings, and on either side with a large oblong black spot Base of femora and pectus blackish, a little whitish pile on each side, also on the abdominal segments, especially on the last, hairs of the femora whitish, tarsi with some short whitish hairs, pulvilli testaceous halteres whitish Wings of a very pale gray, the basal half whitish, the costal and second longitudinal veins tawny

Type —Bigot collection

Habitat —California (type), Los Angeles Co , Cal (Coquillett)

The material of this species in the National Museum is in very poor condition, so I have used the original description The hypopleura is bare and the sternopleura has only a very small amount of pile, not arranged in a tuft The wings are very small, hardly reaching beyond the tip of the fourth segment

This species is very close to *nigritulus*, also from California, both as regards general build, shape of wing and pile of pleuræ

Stenopogon inquinatus (Pl III, fig 2)

Stenopogon inquinatus Loew, Cent , VII, 47, 1866

Stenopogon inquinatus Jones, Trans Am Ent Soc , XXXIII, 274, 1907 (locality note)

Stenopogon inquinatus Howard, Insect Book, 1902 Pl XIX, fig 7

♂ ♀ —*Length* 23–25 *mm* —Third segment of antennæ elongate, as long, or longer, than the first two segments together, not excised within on the distal half, style bristle-like, fully half as long as the third segment Head and thorax, except the humeri, black, very thinly clothed with grayish bloom, abdomen except on sides, and legs except femora above, yellowish-red Hypopleuræ bare, meso- and sternopleuræ with a very limited amount of fine short hair

Face and lower occiput densely grayish-white pruinose, front less so, bloom of thorax, coxæ and sides of abdomen very thin, not obscuring the subpolished ground color Palpi, basal segments of antennæ, and often the third segment and style in varying degree, reddish Abdomen brick red, polished, lateral margins of all the segments broadly black, but usually not showing from above in dried specimens, posterior lateral margins whitish pruinose, genitalia of male red Bristles of body pale straw colored, except those of basal segments of antennæ, humeri, abdomen and legs, which are more reddish, hair of thoracic dorsum very short throughout and black Legs yellowish-red, the femora above, except at apices, black, claws black, yellow at base, pulvilli pale Wings throughout tinged with fuscous, the first and fourth posterior cells open or closed, showing considerable variation in this respect

Type —M C Z

Habitat —Nebr (type), Glen, Sioux Co, Springview Bridge, Brown Co, West Point, Nebr, Vernon, B C (July 24)

Stenopogon morosus.

Stenopogon morosus Loew Berl Ent Zeit, 1874, 356

♂ ♀ —*Length* 21 5–37 *mm* —Translation —Black, lightly sprinkled with grayish bloom apex of the femora the tibiæ and the tarsi piceus rarely nigro piceus, of the front tarsi sometimes reddish, the first two segments of the antennæ and the front with black hair, nearly all the bristles of the femora black the wings wholly blackish gray Male abdomen black, the last two segments and the hypopleuræ for the most part reddish Female abdomen ornamented with a very broad red vitta, or sometimes wholly black

A very variable species, of which I have had the opportunity of examining three males and four females so much like *modestus* that I was at first inclined to consider it as a variety of that species, but all the specimens are somewhat smaller and of less robust body structure, the whitish bloom is also much thinner everywhere, so that the black ground color of the body is very little modified when seen through the bloom The four females are distinguished from the females of *modestus* in the following respects —(1) The first two antennal segments are conspicuously, or at least quite noticeably, covered with black hair, whereas in *modestus* they are conspicuously clothed with white hair (2) the hair of the whole front is black, while in *modestus* it is black only on the ocellar tubercle, but otherwise white, (3) the abdomen in all four females has a broad red longitudinal stripe, while that of *modestus* has only a small trace of reddish color, the bristles of the femora are, practically without exception, black, although on the anterior side of the middle femora of one specimen there are a large number of pale yellowish ones intermixed, while in *modestus* the bristles on the femora are pale yellowish or yellowish white, with only here and there a black one

The antennæ of *morosus* are black, but in the male the third segment is red to some extent on the end; the antennal style is proportionately long. Mystax whitish-yellow, in its upper portion usually, and sometimes in its outer border, with a few black hairs. Bristles of occiput on the upper half more yellowish-white, on the lower half purer white. The humeral callosities red or reddish-brown with black bristles; of the bristles of the posterior third of the thoracic dorsum, the anterior ones are black, the posterior ones yellowish-white; of the bristles located on the lateral margins of the thorax, sometimes the black, sometimes the lighter ones prevail. The abdomen of one male is without perceptible black; in two the hypopygium and last abdominal segment are red, and in the third the red color is spread clear over the last segment. The very bright red fascia on the abdomen of the female sometimes appears as a dark spot. The wings in both sexes are entirely uniformly blackish-gray. The fourth posterior cell is often comparatively wide.

Type).—M. C. Z.

Habitat.—Red River of the North, Minn.

There are twenty-five specimens of a *Stenopogon* at the M. C. Z. taken at Yakima R., Washington, June 30—July 8, which I believe are *morosus*. They are all large, generally black; the polished ground color showing through the extremely thin coating of grayish bloom, which along the sutures of the thoracic dorsum and on the pleuræ is denser. In some the abdomen is wholly black, in others there is only a faint suggestion of reddish color along the posterior margins of the segments, while in still others the upper side of the whole abdomen is reddish in varying degrees, and in six specimens the entire abdomen is yellowish-red except on the lateral margins of the segments. The venter may be reddish or black. The hypopleuræ is wholly bare; the sternopleura bears a small amount of rather long pile, but not such a pronounced tuft as in *breviusculus*, *jubatus* or *gratus*.

I suspect that *modestus* and *morosus* are the same. Carefully collected and labeled material, however, is necessary to determine this point.

Stenopogon modestus (Pl. III, fig. 4).

Stenopogon modestus Loew, Cent., VII, 46, 1866.

♀.—*Length* 26–28.5 *mm.*—Translation.—Grayish; mystax, beard and thoraic bristles straw-colored; legs grayish-black; knees and tarsi brown; wings equally fuscous.

Length of body 13–14 *lin.*, *of wing* 9 *lin.*—Grayish, opaque. Mystax and pile of entire head straw-colored. Antennæ black. Thoracic dorsum with vittæ hardly obsolete, clothed with very short nigro-fuscous pile and straw-colored setæ, humeri brown, whitish pruinose. Abdomen blackish-gray, toward the apex black and polished, clothed with short straw-colored or whitish pile, resupinate on the last two segments. Legs grayish-black, knees and tarsi brown, with many bristles, the bristles of the tibiæ and tarsi for the most part black. Wings equally fuscous, veins dark brown, fourth posterior cell open.

Type.—M. C. Z.

Habitat.—Red River of the North, Minn.

The above description means very little, but lack of material forces me to use it.

Stenopogon æacidinus.

Stenopogon æacidinus Williston, Trans. Am. Ent. Soc., XIII, 289, 1886.

Stenopogon æacidinus Jones, Trans. Am. Ent. Soc., XXXIII, 274, 1907 (note).

♂ ♀.—*Length* 14–20 *mm.*—Black; abdomen, except base, hypopygium of male, and the last two segments of female, yellowish red, wings black, mystax white. Hypopleuræ with fine short hair.

"Like species of *Ospriocerus*, but the antennæ with a distinct terminal style. Face wholly densely grayish white pruinose, the bristles of the mystax white; frontal and occipito orbital bristles black, beard and long hair of the anterior coxæ white. Dorsum of thorax moderately polished, brownish-black, on the sides grayish or brownish-yellow pruinose, behind and on the scutellum less thickly so, in the middle with not very noticeable stripes. Abdomen slender, yellowish red, the first, second and anterior angles of the third segment and the hypopygium black. Legs black, the fore femora more or less, the fore and middle tibiæ and tarsi, pitchy or reddish. Wings black."

Type.—University of Kansas. Three male specimens.

Hatabit.—Kansas Plains, in grassy ravine, Aug. 20 (type), Garden City, Ks. (Aug., H. W. Menke), Bear Cr. Cañon (July 5–8) and Denver (Osten Sacken), Col., Lincoln Nebr. (July).

I have seen about twenty specimens of this species, and they all agree very well with the above description. The female is like the male except that the last two, and sometimes the last three, segments of the abdomen, are polished black. The frontal bristles appear to be uniformly black, but the occipito-orbital ones are as frequently black as they are whitish; the red of the fore femora is quite variable in extent, sometimes covering the whole lower half, and again found only toward the tip. In all the specimens examined the second segment of the abdomen above is wholly reddish except for a black spot in the middle on the basal half which may be large or hardly noticeable; all the segments laterally are narrowly margined with black, and the posterior angles of segments 2–5 are narrowly covered with a whitish bloom, which in some specimens is hardly perceptible. Venter wholly black. The fourth posterior and anal cell closed at the margin, the others wide open.

This species is very closely related to the species of *Ospriocerus*, but the short terminal style of the antennæ prevents its location in that genus. It seems to be an intermediate form.

Stenopogon nitens.

Stenopogon nitens Coquillett, Jour. N. Y. Ent. Soc., XII, 34, 1904.

♂.—"*Length* 16 *mm.*—Distinguished by the polished black abdomen. Black; the halteres whitish; pulvilli yellow, with two brown vittæ; tarsal claws reddish at base; hairs and bristles whitish, those on the antennæ, front, middle of mesonotum, abdomen except the first two segments and on the legs except the coxæ black; pubescence on inner side of the fore tibiæ golden yellow, hairs on lower side of fore femora chiefly whitish; mesopleura bare, hypopleura hairy; third segment of antennæ rather slender and elongate, about sixteen times as long as the style; head and thorax grayish pruinose, the mesonotum, except along the sides and posterior end, somewhat polished; abdomen polished, a transverse white pruinose streak in hind angles of segments 2–5; wings blackish, tinged with yellowish in the costo-basal portion, veins black, first posterior cell considerably narrowed at the apex, the fourth closed at the margin."

Type.—Brooklyn Institute. A single male specimen.

Habitat.—Southern Texas (May).

Stenopogon subulatus.

Dasypogon subulatus Wiedemann, Auss. Zw., I, 375, 1828.

♂ ♀.—*Length* 20–22 *mm.*—Wings broad, uniformly brownish or blackish, abdomen and legs reddish-yellow, the fore and middle femora, and sometimes the hind femora, with black vittæ above.

Reddish-yellow; face, front and occiput yellowish-gray pruinose;

the first two segments of the antennæ, the palpi and more or less of the proboscis reddish. The third segment of the antennæ black, thin, not twice as long as the basal segments, beyond the middle, when viewed at certain angle, clearly narrowed to the tip, this effect being caused by a depression on the inner side of the distal half of the segment, style about one-fifth as long as the third segment. Bloom of the thoracic dorsum more yellowish-brown, showing a median narrowly divided stripe and two broad lateral darker stripes much abbreviated posteriorly. Bristles of the face, basal segments of the antennæ, occiput, prothorax, coxæ, sides of the basal abdominal segment and many along the lateral margins of the thoracic dorsum deep yellow; those of the front, a few on the pronotum and on the lateral and posterior portions of the mesonotum black, many with pale tips. Bristles of the scutellum black or reddish-yellow, the black ones usually becoming yellowish toward the tip. Mesopleuræ bare, sternopleuræ with scarcely perceptible yellowish pile; hypopleuræ with short hair of the same color; the entire pleuræ more grayish pruinose. Abdomen long, quite slender, subpolished, reddish-yellow, with very short appressed hairs of the same color, the lateral margins of the segments narrowly grayish pruinose; genitalia of male reddish, the terminal segment of the male often with a black spot above, the last two segments of the female blackish above. Legs reddish, the fore and middle femora with a short black fasciæ above, the hind pair sometimes with black markings varying in extent, in some cases almost wholly black; hair of legs wholly reddish, the bristles mostly black, a row on the outside of the fore and middle tibiæ reddish. Basal half of claws reddish, pulvilli pale Wings deep brownish or blackish, all or several of the cells with paler centers; the first posterior cell wide open, the fourth closed and petiolate, the anal narrowly open.

Habitat.—Ga. (type); Ga. (Morrison), Tifton, Ga. (Sept. 9, C. W. Johnson); Lumberton, N. C. (Sept. 6, F. Sherman); Col. (?).

There are very good specimens of this species in the collection of the Am. Ent. Soc. Phila.

Stenopogon longulus (Pl. XII, fig. 2).

Stenopogon longulus Loew, Cent , VII, 50, 1866.

♂ ♀.—*Length* 17–20 *mm,; of wing* 12–12.4 *mm.*—Head and thorax, excepting the humeri, the base of the first and lateral margins of all the abdominal segments, and the vittæ on the femora above, black; remainder of abdomen and legs reddish-yellow; head, thorax; base and sides of abdomen grayish or yellowish-gray pruinose; hypopleura with weak trichostical hair, sternopleuræ with mere traces of fine hair; third antennal segment black, much longer than the two basal segments, at the middle rather suddenly tapering toward tip due to a depression or a flattening of the distal half, about twice as long as the short, thick style. Wings subopaque, of a dull yellowish-gray color; veins yellowish, the first posterior cell wide open, the fourth usually closed at the margin or slightly petiolate.

Type.—M. C. Z. Homotype, University of Kansas.

Habitat.—Dallas, Tex.; Mesilla Park (May 8), Mesilla Valley, and Alamogordo, N. M.; Ariz. (June 9).

Very closely resembling *consangineus*, but a little larger, more graceful, the thorax narrower, and the abdomen both narrower and longer, the wings are longer and less broad and of a deeper fuscous tinge. On the whole *consangineus* appears less bristly. The contrast between the black thorax and reddish abdomen is best brought out in greased specimens. The black vittæ of the front and middle femora are very limited, those on the latter often being wholly lacking; the vittæ of the posterior femora usually very narrow, but sometimes broadening out to cover the entire anterior and upper surfaces The thoracic dorsum in darker specimens show a faintly divided median and two lateral, very obscure, brownish stripes Bristles of entire body white or sordid white, those on vertex and legs more yellow.

Stenopogon consanguineus.

Stenopogon consanguineus Loew, Cent , VII, 48, 1866
Stenopogon consanguineus Jones, Trans Am Ent Soc Phila , XXXIII, 274, 1907 (locality note)

♂ ♀ —*Length of body* 14–15 *mm* , *of* ♂ *wing* 9 5 *mm* , *of* ♀ *wing* 11 3 *mm*—Ochraceus, thorax, except the humeri, black, bloom dense, luteus, opaque, lateral vittæ of the abdominal segments and of the femora black, wings subfuscous, costa and veins on proximal portion of wing ochraceus, second submarginal cell rather shorter, fourth posterior cell closed before the margin of the wing

Ochraceus, head black, but with dense very pale flavous bloom Antennæ black Mystax and pile of the entire head sordid yellowish-white Thorax, except the humeri, black, but covered with a dense luteus bloom, opaque, dorsum covered with short pile and sordid yellowish-white or whitish bristles Abdomen ochraceus, the sides of the segments black, the posterior margins for the most part excepted Legs ochraceus, femora with black vittæ above, all the bristles yellowish-white, hind tibiæ occasionally brownish beneath Wings subfuscous, the centers of the posterior cells paler, the fourth posterior cell closed before the margin of the wing The wings of the male are shorter than those of the female, and with shorter submarginal cells

Type —M C Z

Habitat —Nebr (type), Pierre, S D (J M Aldrich), Rocky Ford, Col (July 4), Sioux Co , Nebr , (P R Jones)

The antennæ of both *consanguineus* and *latipennis* are similar, the third segment is much longer than the two basal ones, about two times as long as the rather thick short style, and flattened on the distal half, thus from certain positions appearing tapering toward the tip from about the middle

Both species have a small amount of hair on the hypopleuræ before the halteres The thorax of *consanguineus* is more grayish pruinose and the bristles of the occiput and thorax more nearly white

Mr Jones states that this species is common in northwestern Nebraska in the fall

Stenopogon latipennis (Pl III, fig 1)

Stenopogon latipennis Loew, Cent , VII, 49, 1866

♀ —*Length of body* 18–19 *mm* *of wing about* 12 5 *mm* —Translation —Ochraceous head prothorax, spots of pleuræ, the three dorsal stripes of the thorax and the metonotum black, but clothed with a luteus bloom, wings rather broad, subfuscous, costa and the proximal veins ochraceous, second submarginal cell rather shorter, fourth posterior cell closed before the margin of the wing

Very much like *consanguineus* but larger and more robust, front a little narrower, wings broader and femora stouter Antennæ black, thorax ochraceous prothorax, spots of pleura, metanotum and the three dorsal stripes black, opaque, clothed with dense luteus bloom The entire abdomen ochraceous, the posterior margins of the last segments sometimes blackish Posterior coxæ ochraceous with black spots Legs wholly ochraceous, the pile and all the bristles luteus Wings rather broader, subfuscous costa and costal veins ochraceous, second submarginal cell rather shorter, fourth posterior cell closed before the margin of the wing

Type —M C Z

Habitat —Western Texas (type), Dallas, Tex , N M , Denver, Col (?)

There are at the M C Z a single male and female, and at the Nationl Museum a male, all from Texas, which I regard as typical of this species The wings of these are broader, more deeply tinged with yellow, the bristles of the body are more golden There are other specimens in the collection of Prof C W Johnson from Boulder Cañon, Col, which are doubtless *latipennis* See note under *consanguineus*

Stenopogon pumilus.

Stenopogon pumilus Coquillett, Jour N Y Ent Soc, XII, 1904

♂ ♀ —*Length* 14 *mm* —Near *consanguineus* but smaller, not reddish, but blackish and clothed quite uniformly with a grayish bloom

Black, the upper side of the front and middle femora, their tibiæ and tarsi reddish yellow all the claws yellowish at base, pulvilli pale Head, thorax and abdomen clothed with a rather dense brownish gray bloom the thoracic dorsum with two narrow median dark-brown stripes abbreviated posteriorly Proboscis, palpi and antennæ black, the third antennal segment elongate, thin, about ten times as long as the very short style Mesopleuræ bare, sternopleuræ with a patch of inconspicuous white short pile, hypopleuræ with very inconspicuous pile, but without well developed hair or bristles Bristles of face and coxæ white, those of the front, occiput, lateral margins of thoracic dorsum, scutellum and sides of the first abdominal segment more sordid yellowish-white hair of the front in part black Hair of all the legs sordid white, the bristles of the front and middle pairs largely white, the remainder and nearly all of those of the hind pair black Halteres yellowish The wings reach but little beyond the tip of the fifth abdominal segment, dark brown along the broad hind margin and apex, elsewhere largely tinged with yellowish, veins brown and yellowish, narrowly bordered with grayish first posterior cell scarcely narrowed toward margin, the fourth closed at varying distances from the margin

Type —Two male specimens, at least one being at the Brooklyn Institute

Habitat —Brownsville, Tex (Apr and May, type), Clark Co, Ks (June, elev 1,962 ft, F H Snow)

The extreme base and tip of the abdominal segments are yellowish in greased specimens One female has the sides of the prothorax, the front and middle coxæ, and a narrow line on the hind femora reddish, the last two abdominal segments, as usual, are polished

Stenopogon tenebrosus.

Stenopogon tenebrosus Coquillett, Jour N Y Ent Soc, XII, 33, 1904

"♂ —*Length* 22 *mm* —Near *consanguineus*, but much darker, the wings brown and without any yellow coloring Black, the halteres, pulvilli and bases of tarsal claws yellow; a reddish yellow vitta on the upper side of the anterior femora; hairs and bristles yellowish-white, those on the hypopygium and in the middle of mesonotum chiefly black; third segment of antennæ narrow and elongate, about seven times as long as the style; body grayish pruinose, very thin in middle of mesonotum, the hypopygium polished; mesopleura bare, hypopleura hairy; wings, including the veins, brown, rather narrow, the first posterior cell slightly narrowed toward the apex, the fourth closed far from the wing margin."

Type.—U. S. N. M., Cal. No. A single male specimen.

Habitat.—Southern Texas.

Stenopogon ochraceus.

Stenopogon ochraceus Van der Wulp, Tijdschr, v. Ent., XII, 212; Pl. IV, fig. 9; XXV, 96, notes; refers to *Scleropogon*.

Scleropogon ochraceus Osten Sacken, Cat , 1878, note 101.

♂.—*Length* 12 *lines*.—Translation —This specimen is a male, 12 lines long and entirely ocher yellow; only on the thoracic dorsum appear dull blackish and chesnut-brown longitudinal stripes, and on the upper side of the fore femora is a dark brown longitudinal stripe. The face is small and not sunken; the antennæ are tawny yellow, the third segment is as long as the first two taken together, the style about half as long as the third segment. Bristles of the lower half of face stout, bright ocher-yellow, as also are those on the occiput, chin and cheeks. Hair and bristles of the thorax and legs also bright ochre-yellow. The wings are yellowish with brownish-yellow veins, the venation differs from all other species known to me, both wings are entirely alike and represented in fig. 6; the first and fourth posterior cells, together with the anal cell, are closed and the second posterior cell is divided by an extraordinary cross-vein. This venation agrees only with that of Algerian *Dasypogon heteroneurus* Macq. (Dipt. Exot. I, 2, 41. 19, pl. 3, fig. 7), which was placed in the genus *Stenopogon* by Loew. I have, therefore, placed this North American species provisionally in this genus and wish, by means of this communication, to call the attention of more skillful dipterologists to consider the proper establishment of it.

Habitat.—North America.

I do not know this species.

In Note 101 of his 1878 Catalogue, Osten Sacken says, " * * * if I understand Mr. v. d. Wulp's letterpress, the front tibiæ are armed with a spur. How can, in this case, the species be a Stenopogon?"

Stenopogon (Scleropogon) cinerascens n sp

♂—*Length about* 15 *mm*—Everywhere thinly whitish pruinose, with white bristles and hair, the hypopleuræ with a patch of short trichostical hair, the sternopleuræ with sparse short pile, the basal segment of the antennæ reddish, the second and the third black, the third comparativley short, elongated oval, and about one-third longer than the bristle like style Palpi and proboscis black Wings short, not reaching but little beyond the tip of the fourth abdominal segment, hyaline, slightly darkened at tip, the first and fourth posterior cells closed and petiolate Scutellum with but three bristles on each side of the posterior margin Abdomen elongate, the hair throughout very short, appressed, genitalia black Legs black, thinly white pruinose and clothed with white hair and numerous white bristles, claws black, slightly yellowish at base

Type—Brooklyn Institute A single male in excellent condition

Habitat—Brownsville, Tex (July 29)

There are suggestions of reddish markings in the ground color of the femora, base of the tibiæ, portions of the coxæ, pleuræ, face and genitalia, but these are almost wholly concealed beneath the whitish bloom of the perfect specimen of this unique species

Stenopogon (Scleropogon) helvolus (Pl III, fig 3)

Scleropogon helvolus Loew, Berl Ent Zeit, 1874, 355

Scleropogon helvolus Jones, Trans Am Ent Soc Phila, XXXIII, 273, 1907 (note)

Scleropogon helvolus Howard, Insect Book, 1902, Pl XIX, fig 16

♂ ♀—*Length of body* 20–23 *mm* *of wing* 12–13 *mm*—A honey-yellow or flesh-colored species wholly clothed with a thin grayish-white bloom, basal segments of antennæ reddish-yellow, the third dark—usually black—elongate oval, with a terminal style more than one-half as long, hypopleuræ with distinct short trichostical bristles, sternopleuræ with patch of fine hair, first and fourth posterior cells in the five specimens examined closed and petiolate, all the femora above with obscure black markings Mystax, beard and bristles of coxæ white, the bristles of the rest of the body more sordid

"Chamois-leather yellow or cream yellow, which in some specimens verges somewhat toward buckskin-brown, everywhere with a more whitish bloom, in special darker specimens more yellowish on the tibiæ"—Loew Some specimens appear almost wholly flesh-colored, in others the thorax is darker, the bloom of the face is very white, that of the rest of the body more grayish, but can hardly be said to obscure the ground color The third antennal segment little longer than the reddish-yellow basal segments, elongate oval, black, on the outer base sometimes yellowish, style likewise black or blackish, considerably longer than half the length of the third segment Proboscis blackish, palpi of same color as rest of the body The divided median stripe of the thoracic dorsum with a little light bloom, darker than the lateral stripes, noticeably only on the darker specimens, lateral stripes not very evident in unrubbed specimens Abdomen long and slender, much as in *longulus*, with a patch of bristles on sides of the first three segments, hair on all the segments very short, appressed , genitalia and legs of the same color as the rest of the body Legs thinly grayish pruinose, the femora on the upper side with more or less broad blackish longitudinal vittæ, which on the middle femora are apt to be darker, or sometimes wholly wanting, all these vittæ more or less obscure, apical half of claws black Wing hardly reaching beyond the tip of the fifth abdominal segment, with darker yellowish gray or light sand colored opaqueness, the veins light brown near the anterior border, brownish black elsewhere, the first and fourth posterior cells usually closed and petiolate

Type —M C Z

Habitat —Texas (type), Dallas, Tex , Segwick Co , Ks. (Aug , E S Tucker), Glen, Sioux Co , Nebr (P R Jones)

Stenopogon (Scleropogon) similis.

Scleropogon similis Jones, Trans Am Ent Soc , XXXIII, 274, 1907

" ♀ —Near S *helvolus* Length of body 24 mm of wings 12 mm When compared with S *helvolus*, the antennæ are shorter, third joint broader and less than the length of the first two joints together Style as long as the third joint, first two joints yellowish red, apex of second darker, third joint and style black The specimen is somewhat rubbed, but where the pollen can be seen it is similar to that of the preceding species Wings hyaline, first posterior, fourth posterior and anal cell closed, the two former petiolate Hypopleura with a patch of bristles "

Type —University of Nebraska A single *rubbed* female

Habitat —Valentine, Nebr

I have never seen this species

Stenopogon (Scleropogon) picticornis.

Scleropogon picticornis Loew, Cent , VII, 45, 1866

♀ —*Length of body* 20 *mm* , *of wing* 15 *mm* —Translation —Rufescens, clothed with very pale yellow or whitish pile and bristles, head, excepting the oral margin, the second segment of the antennæ, together with the base of the third, the three dorsal thoracic stripes, the spots of the pleuræ, the thoracic stripes, the scutellum, the broad abdominal fasciæ, the vittæ of the fore femora, the anterior side of the posterior femora and the hind tibiæ nearly wholly black.

Rather rufous, subopaque, clothed with pale straw or somewhat whitish pile and rigid bristles, except the bristles of the vertex and front, and the short pile on the thoracic dorsum which are largely dark red or black. Head, excepting the oral margin, black, subochraceous pruinose, antennæ dark red, the second segment and the base of the third black, the extreme apex of the latter and the terminal style fuscous. Palpi black Dorsal stripes of thorax black, all three equal, the lateral ones much abbreviated anteriorly. Scutellum black. Pleuræ with black spots. A very broad, black basal vitta on each of the first five abdominal segments, on the sixth segment three black vittæ are present, running together before the posterior margin, the seventh segment similarly marked to the sixth but with the middle vitta shortened into a fine line; the eighth segment short, except the basal spot, black. Venter rufous, posterior margin of the seventh segment and the eighth segment black or nigro-piceous. Pile of the abdomen quite short, that of the last segment supine. Legs rufous, the anterior and intermediate femora with black markings, the anterior spot broader; the anterior side of the posterior femora black, posterior tibiæ black, the inner side, except the apical third, reddish. Wings rather short, lightly infuscate, veins fuscous, transverse median vein spotted with fuscous; first and fourth posterior cells closed and petiolate, the third much dilated

Type.—M. C. Z.

Habitat.—California (type).

The single type of *picticornis* is a very badly greased female. As it stands, it is most easily distinguished from any of the group, aside from *æacidinus*, by its dark brick-red color; the three broad black thoracic stripes stand out distinctly on the dark red dorsum; on the pleuræ there is a large black spot covering the humeri, central portion and the mesopleuræ, and other less definable spots above the coxæ. The black fasciæ of the abdominal segments alternating with the red hind margins of the segments make the abdomen very uniquely colored. Bristles of whole body pale straw-colored. Trichostical bristles present; first and fourth posterior cells closed and petiolate.

There are two specimens from Lance Creek, Wyo. (Aug. 14, 1895), at the American Museum, two specimens from Custer and Piedmont, S. D., in the collection of Prof. J. M. Aldrich, one female from Denver Highl. (Aug. 18), at the M. C. Z., and a pair from Cal. (July 30) in the collection of Prof. W. C. Johnson, which I think are *picticornis*. The ungreased specimens with the bloom largely concealing the reddish ground color appear very differently from the greased type. The whole body is covered with a yellowish-gray bloom, the dorsum of the thorax showing a dark narrowly divided median stripe and rather obscure ill-defined lateral ones; the posterior portion of the thoracic dorsum very bristly; segments 2–7 of the male, and segments 2–5 of the female, abdomen with bare polished spots. These spots are characteristic of the species (so far as my material goes); they are narrow and located on the anterior half of the lateral margins, nearly or quite touching the anterior margins of the segments. In the female the last two segments of the abdomen are polished black, but reddish above. Basal segments of antennæ black or reddish-yellow, the third segment black, sometimes reddish-yellow at base and tip, longer than the basal segments, and about twice as long as the style. The first and fourth posterior cells of all the specimens closed and petiolate. In the two specimens from South Dakota, which are greased, the thoracic dorsum is wholly black except two red stripes, broad anteriorly and embracing the humeri, and behind narrowing rapidly, which separate the median from the lateral stripes.

SPHAGEUS.

Sphageus Loew, Cent., VII, 55, 1866.
Spahageus Schiner, Verh. Zool.-Bot. Ges , XVI, 847, 1866; quotes orig desc.

Legs strong, under side of the front femora with a patch of short very stout bristles on the proximal half; middle femora with a similar patch on the middle of the underside and on the middle of the anterior side and extending over onto the upper side; hind femora with only scattering bristles; coxæ with strong bristles. Antennæ similar to that of *Dizonias*, but without the excision on the third segment; first segment cylindrical; second, shorter, swollen distally; third elongate, not noticeably narrowed at tip, and without style, over two times the length of the first and second segments taken together; on close examination a minute spine will be seen situated a little to one side of the tip of the segment. Face swollen on the oral margin; from thence gradually receding until the antennæ are reached; mystax extending nearly to antennæ. Thorax normal. Abdomen as in *Dizonias;* not narrowed toward the tip in the male; somewhat so in the female; genitalia similar to *Dizonias*, *Ceraturgus* and *Ceraturgopsis*, leaving the end of the abdomen apparently open. Abdomen without bristles except on side of the first segment.

Type.—*Sphageus chalcoproctus* Loew.

The characteristic patches of short bristles on the femora make this a very unique genus.

Sphageus chalcoproctus.

Sphageus chalcoproctus Loew, Cent., VII, 55, 1866.

♂ ♀.—*Length* 19.5 *mm.*—Head and thorax black, antennæ, angles of thorax, scutellum, abdomen and legs yellowish-red. Face, front, occiput, all the coxæ before, spot over each coxæ, before base of wing, the pronotum, and a stripe running backward to the posterior callosities above the dorso-pleural suture, spot behind each humerus, two stripes in front of the scutellum attenuated anteriorly, the scutellum, except spot at middle of base and a spot above each halter, all golden pruinose. Mystax extending upward nearly to the antennæ; pile and bristles of head, thorax and abdomen wholly golden. Anterior angles of segments 2–4 of the abdomen with a white pruinose spot reaching backward to the posterior angle; all the segments with a narrow black posterior margin; fifth segment of the female with a brilliant metallic purplish luster; male genitalia reddish with golden hair. Legs reddish-yellow, bristles of the characteristic patches black; rest of bristles black and yellow; claws black, reddish at base. Wings yellowish, the discal, second submarginal, all the posterior, the anal and the axillary cell lighter in the center.

Type.—M. C. Z. A single male and female specimen.

Habitat.—Cuba.

MICROSTYLUM.

Microstylum Macquart, Dipt. Exot., I, pt. 2. 26, 1838.
Microstylum Loew, Dipterenfauna Sudafrika's, 74, 1860.
Megapollyon Walker.
Megapollyon Bigot, Annales, V, 548, 1857 (table of genera).

Large species. Proboscis longer than the height of the head; wings of ordinary length and narrowness, first posterior cell narrowed, closed at the margin, or petiolate, the second projecting into the first, the third much broader than long, equaling in width the discal and the fourth posterior cells together, the fourth at the very extremity very oblique, and on the same line as the extremity of the discal cell, the latter long and narrow, the anal cell closed at the margin. Face broad, but slightly and evenly swollen, facial orbits parallel, frontal orbits emarginate and beset with short forward directed bristles. Mystax composed of fine hairs, strong bristles, or a mixture of both; when of the first the fine hair extending upward to the base of the antennæ. Segments 1 and 2 of the antennæ subequal, cylindrical, segment 2 more slender and slightly swollen distally; segment 3 attenuated at base, thence fusiform, style very short, hardly perceptible. Occipital bristles well developed. Thoracic dorsum with microscopic hair, bristles only on the lateral margins above the base of the wings, and on the posterior callosities; scutellum with two bristles. Trichostical bristles present. Abdomen elongate, slightly tapering, without bristles except on the lateral margins of the first segment, but with microscopic hair; hypopygium small, ovipositor with a circlet of spines. Fore tibiæ without a terminal claw-like spur.

Type.—Dasypogon venosus Wiedemann.

Microstylum is represented in North America north of Mexico by two species, *galactodes* and *morosum*, the latter being our largest Asilid now known. As in both our species, the mystax is confined to the oral margin and is composed chiefly of stout bristles; they naturally fall under that division of the genus which Loew, in his Dipterenfauna Sudafrika's characterizes as "*Knebelbart armharrig, mit ausserst dicken Borsten durchmengt.*"

SYNOPSIS OF SPECIES

Wings more or less milky white; head and thoracic dorsum evenly whitish pruinose . **galactodes.**
Wings blackish or yellowish-brown; bloom of thoracic dorsum prominent only on the lateral margins **morosum.**

Microstylum galactodes.

Microstylum galactodes Loew, Cent , VII, 44, 1866.

♂ ♀ —*Length* 30-34 *mm* —Dark reddish-brown species with thorax whitish pruinose and wings more or less milky-white

Reddish-brown; face, front, occiput and pleuræ densely grayish-white pruinose, the dorsum more thinly, and the abdomen very faintly so; last four segments of the female abdomen and the entire venter in both sexes, except at the base, without bloom and polished. The four setæ of the mystax, bristles of the palpi, beard and upper occiput stout and black, as are they elsewhere on the almost bare body; bristles on the posterior callosities pale at tip. Halteres yellowish, stalk darker. Hypopygium more yellowish-red than the rest of the abdomen, with black, sometimes fulvous, hair; spines of the ovipositor crimson. Legs darker than the body, with short stout hair and longer black bristles. Claws black, red at base; pulvilli straw-colored. Wings whitish hyaline, excepting the apical half of the anterior margin, the apical third of the wing .and a very broad border on the posterior margin, milky-white; veins yellowish. The milky color in the wings of the female is less widely diffused than in those of the male.

Type.—M. C. Z. Type series consists of three males and six females.

Habitat.—Pecos River, Texas; Kansas; N. M.

Easily separated from the blackish-winged *morosum* by the milky whiteness of its wings and the even whitish bloom of its head and thorax.

Microstylum morosum (Pl. VI, fig. 4 ♀); (Pl. VIII, fig 4 ♂):

Microstylum morosum Loew, Cent., X, 27, 1872.

Microstylum pollens Osten Sacken, Aldrich Cat. of N. A. Dipt., 256; note.

Microstylum morosum Howard, Insect Book, 1902; Pl. XIX, fig. 17.

♂ ♀.—*Length* 35–37 *mm.*—Black, legs and wings of the same color; head and thorax whitish pruinose, the bloom on the dorsum, however, extremely thin except on the margins; bristles of mystax, beard and coxæ white. Female abdomen reddish above.

Face and front densely whitish pruinose, occiput less densely so, except along the orbits, mystax white, composed of more bristles than in *galactodes;* the palpi, segments 1 and 2 of antennæ, the front and occiput with black bristles and hair; rest of the bristles of the occiput and the beard white. Segment 2 of the antennæ reddish. The white bloom of the dorsum, because of its thinness in the center, appears most clearly as a band extending along the sides back to and including the scutellum; pleuræ likewise whitish pruinose, but more densely so below the sternopleural suture. Prothorax above with black bristles, below on the sides with whitish pile. Dorsum rather bare, with very short black hair, but on the posterior callosities with dense short whitish pile. Bristles on the posterior callosities, the coxæ, before the halteres, white; elsewhere on the dorsum and scutellum, black. Halteres yellowish. Abdomen wholly black, thinly whitish pruinose, at the base and on the sides more densely so; aside from the short white bristles on the lateral margins of segment 1, with microscopic black hairs above, and similar white ones on the sides. Hypopygium black, with black pile. Legs black with short black hair and longer, but proportionately short black bristles; the middle almost wholly, and the hind femora in part, with short white hair; claws wholly black, pulvilli blackish. Wings uniformly blackish with white veins; the first posterior cell closed before the margin and with a short peduncle

♀.—The type female differs from the male, to which it is very similar, in the pale yellowish color of the bloom of the head, thorax and coxæ; in the reddish color of the tergum of the abdomen covering the third, fourth and fifth segments except on the sides, and the sixth segment toward the base; and in that the last four segments of the abdomen are not pruinose, but polished.

Type.—M. C. Z. Single male and female type.

Habitat.—Dallas (type) and Victoria (June 5), Texas.

In Note 100 of his "Catalogue of the Diptera of North America," Osten Sacken says, "The Mus. Comp. Zool. possesses a number of specimens of a *Microstylum* which are of the same size as *M. morosum*, but which Dr. Loew, to whom I communicated a specimen, considers a different species and calls *M. pollens*. It is less intensely black than *morosum*, antennæ and legs are often quite reddish-brown, the bristles of the sides of the thoracic dorsum are yellowish-white, etc. As I had no opportunity to make a thorough comparative study of both species, I merely draw the attention of collectors to it." On the strength of this note, Prof. Aldrich, in his recent catalogue, raises "*pollens*" to a specific rank with the note "Osten Sacken's reference was not intended as a description, but I think the data and the availability of the types make it valid."

The specimens thus referred to are five females collected at Dallas, Texas, the type locality for *morosum*. I do not consider *morosum* and these five specimens which Loew calls "*pollons*," *in litt.*, as distinct species, for the study of considerable material at the M. C. Z., the National Museum and the Am. Ent. Soc. shows that even the typical *morosum* is inclined to vary as to the color of antennæ, etc., and even among these five "*pollens*" specimens we find that the color of the antennæ, legs and abdomen is not constant, and the yellowish color of the bloom is only such as we might expect, and often find, in the female of a dark male The fact that these specimens and the specimens of *morosum* came from Dallas and that Loew made his description of *morosum* from a single male and female, has its weight in considering a species subject to variation

These "*pollens*" specimens are of the same size as *morosum* with similar, though less intensely black, wings, and the antennæ and legs are reddish-brown In one specimen the third antennal segment is black The bloom follows the same pattern as in the typical *morosum*, but is yellowish, not white In *morosum* the bristles of the palpi, antennæ, front, occiput, legs and many on the thorax are black, in "*pollens*" the bristles are everywhere pale yellow or sordid white except on the legs, where they are of the same reddish color The abdomen is reddish-brown, in several specimens more reddish than in others, but in no case is the red color so sharply marked and defined as in the female type of *morosum* One specimen has the tergum of the abdomen throughout yellowish-red

ARCHILESTRIS.

Archilestes Schiner, Verh Zool-Bot Ges, XVI, 672, 1866
Archilestris Loew, Berl Ent Zeit, 1874, 377, change of name
Archilestris Osten Sacken, Biologia, Dipt, I, 169, 1887 note
Archilestris Williston, Psyche, V, 259, 1889

Face broad, little swollen on oral margin and thence gradually receding to antennæ, bare, except a single row of bristles on oral margin, facial orbits parallel, front not widened above, but frontal orbits slightly emarginate, but not as much so as in *Microstylum* nor with as many short bristles Segments 1 and 2 of the antennæ subequal, cylindrical, with short bristles above and below, segment 3 longer than segments 1 and 2 taken together, broad at base, gradually tapering to tip, style barely perceptible The third segment on its upper side toward the tip bears a few short bristles Proboscis as long as the height of the head Thorax normal Abdomen elongate, rounded, slightly tapering. Bristles on the occiput, humeri, posterior portion of thoracic dorsum, sides of thorax, coxæ and two on scutellum well developed. Legs with stiff hairs and longer bristles; the bristles are very stout and numerous on the distal portions of all the tarsal segments, the front tibiæ without a terminal claw-like spur, pulvilli normal. Wings with first posterior cell wide open; the fourth closed before the margin.

Type.—*Dasypogon capnopterus* Wiedemann, and *Dasypogon magnificus* Walker.

Archilestris magnificus.

Dasypogon magnificus Walker, List, VI, 427, 1854.
Microstylum magnificus Bellardi, Saggio, II, 79, 1861, Pl. I, fig. 2.
Dasypogon magnificus Schiner, Novara, 168, 1868.
Archilestris magnificus Os. Sacken, Biologia, Dipt. I, 169, 1887.

♀.—*Length about* 40 *mm.*—Thorax a deep rich velvety reddish-brown, abdomen red throughout, wings deeply tinged with brown, but clear at base in the first and second basal and in the anal cell, except for a cloud in the distal part of each, and at the base of the axillary, the first, fourth and fifth posterior, discal and marginal cells.

Face densely covered with fine short appressed pile, appearing pruinose, the single row of bristles forming the mystax black. Front rich brown pruinose, with a few black bristles along the orbits and longer ones on the tubercle. Occiput brown pruinose with black bristles along and above the outer orbits, and black hair below. Palpi and antennæ reddish with black bristles and hair. Thorax everywhere of the same color, with black bristles forming a row over base of wings, on posterior callosities, two short rows on either side of where the geminate stripe would be if it were present, and two bristles on posterior margin of the otherwise bare scutellum black, thoracic dorsum and middle of pleuræ with short black hair. Abdomen red with short microscopic red hair above and black on the sides, the venter with black hair, short, except on the first segment. Lateral margins of the first segment with short black bristles. Legs almost black with bristles and hairs of the same color, claws wholly black, empodia longer and red, pulvilli whitish.

Type.—British Museum.

Habitat.—Mex. (type); near city (Craveri, Salle), Yantepec (Truqui), Hastec (de Saussure), Ventenas (Osten Sacken); S. Am., (Schiner).

There are specimens at the Nat. Museum from Guanajuato and Tepri, Mexico, and a female at the M. C. Z. from Panama.

DIZONIAS.

Dizonias Loew, Cent., VII, 53, 1866
Dizonias Schiner, Verh. Zool.-Bot. Ges., 1866, 846; quotes orig. description.
Dizonias Williston, Biologia, Diptera, I, 305, 1901.

Head obviously broader than high, quite thick; face and front moderately broad; the face scarcely narrowed above, the protuberance moderately convex and reaching nearly to the base of the antennæ and clothed throughout with stiff hairs. Front but little depressed, ocellar tubercle not prominent, but with bristles. Basal segments of antennæ short, cylindrical, the first about twice the length of the second, the second short, swollen distally; the third elongate, over twice the length of the first and second, without a style, on the inner distal half with a distinct excision. Thorax moderately convex above, with stout bristles upon the posterior callosities, in an irregular row extending from before the base of the wing backward and upward to above the callosities and upon the scutellum. Abdomen cylindrical, not attenuated toward the tip in the male, but slightly narrowed in the middle; in the female slightly tapering toward the tip. Male genitalia small, stout, not meeting to close the anal opening, thus giving the tip of the abdomen a broken appearance as in *Ceraturgus* and *Sphægeus;* the female ovipositor with a circlet of spines; empodia well developed. Wings quite broad; first posterior cell wide open, the third very broadly open, the fourth closed before the margin, the anal cell closed on the margin.

Type.—Dizonias phœnicurus Loew.

The males of *Dizonias*, thus far known, are conspicuous in that all have black wings, two whitish pruinose abdominal fasciæ, the posterior one emarginate, located near the bases of the second and third segments; thus they are recognized by their coloration as easily as by their structure. The female differs very much from the male, being usually yellowish-red with golden, instead of white, bands upon the abdomen; in *pilatei* there are pruinose bands on segments 1–5. Dr. Williston in the Biologia says, "the dissimilar coloration of the two sexes of the species of the genus and the uniformity of the structural characters render it almost, if not quite, impossible to collate them Observation in the field will be necessary for this purpose " I have found this true

The males resemble somewhat those of *Ospriocerus* in that they are dark in general color, have broad blackish wings and an elongate third antennal segment without a terminal style. They differ chiefly, however, in the decidedly broader head, the cylindrical, not tapering, abdomen, and in the arrangement of the male genitalia, also in the possession, in good specimens, of the abdominal white bands

Dizonias tristis (Pl VIII, fig 3)

Dasypogon tristis Walker, Dipt Saund , 93, 1856
Dasypogon quadrimaculatus Bellardi, Saggio, II, 80, pl I, f 8, 1861
? *Dizonias phœnicurus* Loew, Cent , VII, 53, 1866
Dizonias bicinctus Loew, Cent , VII, 54 1866
Dizonias bicinctus Osten Sacken, Cat , 230, note 103, 1878
Dizonias phœnicurus Van der Wulp, Tijdschr V Ent , XXV, 96, oc in Argentina
? *Dizonias phœnicurus* Williston, Biologia, Dipt , I, 304, 1901
Dizonias tristis Howard, Insect Book, 1902, Pl XIX, fig 6 ♂, fig 13, ♀
Ospriocerus albifasciatus Back, Can Ent XXXVI, 292, 1904

♂ ♀ —*Length* 16–23 *mm* — ☿ —Wholly black, the second segment of the antennæ, the dorsum of the thorax occasionally, and the distal portion of the abdomen quite frequently reddish, the abdomen with two white pruinose fasciæ near the base, bristles of entire body black, hypopygium chiefly with white pile ♀ —Quite different, see below

♂ —Wholly black, legs and wings of the same color abdomen with two white pruinose fasciæ, bristles of the entire body black hypopygium chiefly with white pile Head black, front, sides of face and occipital orbits whitish pruinose, bristles of the front and occiput, the mystax, beard and pile of palpi black Antennæ black, the second segment and the base of the third slightly reddish, the second and third segments, each in certain lights, grayish-white pruinose Dorsum of thorax black, lateral margins whitish pruinose, pile short and all the bristles black Abdomen black, not polished, the basal cross-bands of the second and third segments whitish pruinose, very broad on the sides, narrowed above, sometimes interrupted Pile of the abdomen short, black, the side of the first, and the anterior angles of the second, clothed with longer pile the posterior margin of the last segment and the hypopygium with white pile Venter black

Legs and coxæ black, the articulations more reddish, the short pile and all the bristles black; claws black, reddish at base; pulvilli pale. Halteres yellowish, base of the peduncle blackish. Wings black, all the cells with a paler central area, the fourth posterior cell closed and slightly petiolate, the other posterior and submarginal cells open, the anal cell closed at the margin.

♀.—Osten Sacken's collection possesses two females, and that of Prof. C. W. Johnson several more. They differ considerably from the male, and might easily be taken for a different species; the head, antennæ, in varying degrees, and the thoracic dorsum, are reddish-brown and not black as in the typical male. The pruinose fasciæ on second and third segment of abdomen are bright golden instead of white, and sometimes the ground color of these segments, excepting the posterior margins, reddish The legs are usually brownish-red, the femora being darker and more or less blackened on the femora; wings brown, the costal vein more yellowish.

Type.—The types are located as follows: *Dasypogon tristis*, British Museum; *Dasypogon quadrimaculatus*, University, Turin, Italy; *Dizonias phœnicurus* and *bicinctus*, M. C. Z.; *Ospriocerus albifasciatus*, Am. Ent. Soc. Phila.

Habitat.—St. Augustine, Georgiana and Enterpirse (C. W. Johnson, May 15), and Turkey Lake, (Orange Co., Aug. 29, E. A. Back), Fla.; Opelousas, La. (C. W. Johnson, June 3); N. M.; Dallas, Texas (Osten Sacken); Mexico and Central America (Biologia).

In determining this species one must allow for a large range of variation. The antennæ may be wholly black, or the distal part of the first segment, the whole of the second and the basal portion of the third may be red in varying degrees. The dorsum of thorax may be wholly black or reddish. The abdomen may be entirely black, with or without the white fasciæ (though I believe the absence of these is due to rubbing or greasing) or the posterior margin of the fourth and the following segment entire, may be red, and sometimes lines or small areas of red may be found on the second and third segments. A specimen may have the thoracic dorsum and the distal portion of the abdomen red, or the dorsum may be black and the abdomen still red. The bristles of the coxæ may be wholly black, almost wholly white, or an even mixture of the two colors.

I have seen material from Florida, Louisiana and Mexico, showing almost every gradation from the black form of *tristis* up to *phœnicurus*, and believe that the latter is only an extreme variation of the former I am, however, in some doubt as Dr Williston has seen and described in Biologia, female specimens of *lucas*, *phœnicurus*, and possibly *tristis* Larger collections will bring out interesting facts

Dizonias pilatei (Pl VII, fig 2)

Dizonias pilatei Johnson, Psyche, X 112, fig 5, 1903

♀ —*Length* 16 *mm* — Yellowish red, head, pleuræ, lateral margins of thoracic dorsum, scutellum and a broad band on the basal portion of abdominal segments 1–5, golden pruinose legs wholly reddish-yellow with pale fine hair and short black bristles all the rest of the clothing of the body yellowish Wings brownish, the discal portion and the veins bordered with yellow

Head, except ocellar tubercle, thickly golden pruinose antennæ, palpi and the lower half of the proboscis reddish the mystax, hair of proboscis, palpi, beard, frontal orbits and ocellar tubercle and the bristles of the occiput whitish Thorax rather narrow, dorsum decidedly reddish, with a broad median and two lateral black stripes, the latter greatly abbreviated anteriorly and distinctly bisected by the transverse suture the whole dorsum faintly obscured by a bloom, the lateral margins, especially when viewed from the side rather densely golden pruinose Pleuræ reddish, with suggestions of black in places, golden pruinose in varying degrees of intensity, being most prominently so on the mesopleuræ, a spot above each coxa and before and above the halteres scutellum likewise golden pruinose Halteres pale yellow Abdomen yellowish red, the extreme base of the first segment and the posterior margin of segments 1–4 almost velvety black, the larger part of the tergum on segments 2–3 blackish segments 1–5 with a broad basal yellowish pruinose band that on the second and third segments occupying the entire lateral margin and gradually narrowing above segments 5–8 polished, reddish yellow Venter black or blackish, toward the tip of the abdomen reddish Legs, including the coxæ wholly reddish yellow, the coxæ golden pruinose, hair of legs short, pale yellow, all the bristles short, black, pulvilli pale, claws black, reddish on basal half Wings brownish, almost blackish on the costa the center of the cells, the borders of the veins more yellowish

Type —Collection of Prof W C Johnson Curator of the Boston Society of Natural History A single female in excellent condition

Habitat.—Tifton, Ga. (Sept. 9, 1896). Collected by Mr. G. R. Pilate and sent to Prof. Johnson by Dr. Garry de N. Hough.

The type specimen is the only one of this species now known. Prof. Johnson says, that aside from the difference in coloration, "that this species is distinguished from *tristis* in having the thorax noticeably narrower and the third segment of antennæ shorter and proportionately broader and entirely red." He also calls attention to the "great difference between the two species in their time of appearing, which shows that they are in no way related, as all data pertaining to the Asilidæ indicate but one seasonal brood." In connection with this last statement, I would call attention to my capture of *tristis* on Aug. 29, 1908, at Turkey Lake, Fla.

PSILOCURUS.

Psilocurus Loew, Berl. Ent. Zeit., XVIII, 373, 1874.
Orthoneuromyia Williston, Kans Univ. Quart., II, 67, 1893

Scutellum with two or four stout bristles; veins at outer ends of discal and fourth posterior cells parallel or nearly so.

Head twice as broad as high, face moderately narrow, nearly flat, on the oral margin slightly convex and more prominent; mystax composed of bristles confined to the oral region, the face as far as the antennæ with fine hair. Front somewhat broader than face, well depressed, and with a rather deep furrow on each side extending from the vertex to the antennæ. Ocellar tubercle prominent without well developed bristles. Antennæ short, first segment cylindrical, not swollen on the underside, above and below with short pile and beneath with a long bristle; second segment likewise cylindrical, more slender, subequal or shorter, with short pile; third segment oval, scarcely longer than the first two segments taken together; style entirely rudimentary. Occiput with pile and bristles. Dorsum of thorax and scutellum everywhere covered with short, down-like, dense pile; on each side of dorsum are three stout bristles located immediately before and behind the transverse suture and upon the posterior callosity respectively. Scutellum with two erect stout bristles upon the posterior margin; sometimes there is another pair, outside these, which may be equally developed or very slight Abdomen convex, broad, of nearly equal length throughout, very bare, notwithstanding the very short hair and short bristles, the latter located on the middle of the segments near the lateral margins, very evident on the proximal segments, more obscure on the successive ones Male hypopygium apparently on the sixth segment, sometimes hidden, with a lateral slender, curved process, and a median, stouter, likewise curved organ In the female only six abdominal segments are present intact, the seventh and eighth being short and withdrawn into the sixth Legs rather stout, the femora with bristles near the apex on the upper side, all the metatarsi jagged on the middle of the underside Marginal cell of wing widely open, the second vein terminates in the costa a considerable distance beyond the confluence of the first vein by a well marked curve, the veins at the outer ends of the discal and fourth posterior cell sometimes, more often not, parallel, though nearly so, and not in same straight line, first posterior cell side open, the fourth posterior closed some distance from the margin, the anal cell closed

Type —*Psilocurus nudiusculus* Loew

Psilocurus is very closely related to *Laphystia* The chief differences between them lie in the possession by the former of two or more stout bristles on the scutellar margin which are absent in *Laphystia* and in the structure of the antennæ, in *Psilocurus* the third segment is rounded, oval, and the style is entirely rudimentary, while in *Laphystia* it is elongate conical and its style is very stout, but not at all rudimentary, and plainly two-jointed The much broader protuberant face and broader front of *Laphystia* are other helps in separation

SYNOPSIS OF SPECIES

1 Legs and antennæ wholly black (S Da) **modestus.**
Legs and first segment of antennæ reddish yellow, the femora with a broad black fasciæ above (Southwestern species) **nudiusculus.**

Psilocurus modestus.

Orthoneuromyia modestus Williston, Kans Univ Quart , II, 67, 1893

♂ —*Length* 7–8 *mm* —Black throughout, the pulvilli and halteres yellow Front a little polished in the middle, thinly grayish-brown pruinose Face rather gray pruinose, somewhat polished in the middle, pile and mystax white Dorsum of the thorax polished, but mostly concealed beneath golden pubescence Pleuræ densely white pruinose, with two polished spots, the one on the mesopleuræ, the other in front of the halteres First five segments of the abdomen with a small silvery spot on the hind angles, elsewhere polished sixth segment a little longer than the fifth, gradually tapering "

Type —University of Kansas One male specimen

Habitat —Western South Dakota (type)

I have not seen this species

Psilocurus nudiusculus (Pl IV, fig 11 Pl IX, fig 4)

Psilocurus nudiusculus Loew, Berl Ent Zeit, XVIII, 370, 1874

♂ ♀ —*Length* 8–10 *mm* —Ground color of head and thorax black, but everywhere densely clothed with a grayish or brassy pubescence, the abdomen black above merging into a brownish or reddish color on the anterior, posterior and lateral margins sometimes almost wholly reddish brown the lateral margins covered with a white bloom which on the posterior margin of each segment, except the first extends in a narrowing line up onto the tergum Legs more or less reddish yellow all the femora above with a black fascia

Face and front grayish yellow pruinose, the occiput brownish, grayish along the orbits, above with a row of bristles, which immediately behind the vertex are black, but smaller and paler on the outer orbits Mystax and the long bristle of the first antennal segment sordid yellow the beard scant, white Antennæ short, the first segment reddish, the others black the third hardly as long as the first two taken together, roundish oval, and bearing on the upper distal portion a very small spine the style rudimentary Dorsum of thorax, scutellum and upper portion of pleuræ concealed beneath a dense clothing of fine appressed brassy yellow pubescence the rest of the pleuræ except a polished stripe, coxæ and the metanotum, grayish white white in certain lights silvery white, pruinose The three bristles on either side of the dorsum and the (usually) four bristles of the scutellum, black Halteres yellow, the trichostical hair pale Abdomen as described above in synopsis, but subject to considerable individual variation, being sometimes nearly black, again more reddish, but always with the broad posterior lateral margins of the segments and the narrow line on the posterior margins, whitish pruinose Abdomen apparently bare, but in truth clothed with very fine pubescence, black upon the dark areas, white upon the white pruinose areas, the characteristic bristles pale, three arranged in a transverse line on the first segment, two on the following two segments and one on the remaining segments. Legs reddish-yellow; all the femora with a broad black fascia, the few bristles toward the tip of the femora above black; the distal portions of the tibiæ and the tarsi pitchy; their bristles pale; pulvilli whitish. Wings grayish hyaline; venation normal to genus.

Type.—M. C. Z. The single male and female type specimens are in very poor condition.

Habitat.—Tex. (type); Opelousas, La. (May, C. W. Johnson).

The male type is somewhat larger than specimens of this species in the collections of Prof. C. W. Johnson, Kansas University, or of the Massachusetts Agricultural College. The female type is much faded. The difference in the ground color mentioned as sexual by Loew is of little or no importance, as both male and female vary from a dark to a reddish abdomen as above noted. Neither are veins closing the discal cell and fourth posterior cell behind always parallel; in fact, they are more often not so.

LAPHYSTIA.

Laphystia Loew, Linnæa Ent , II, 538, 1847
Laphystia Schiner, Fauna Austr., I, 136, 1862.
Laphystia Bigot, Annales, 1879, 235.
Laphystia Hermann, Berl. Ent. Zeit., L, 29, 1905
Asicyia Arribalzaga, Hermann, Berl Ent Zeit , LIII, 152, 1908.

Intermediate between the Dasypogoninæ and the Laphrinæ. The first marginal cell but slightly open, the first and second longitudinal veins running into the costa at very nearly the same place. Body broad, stout. Antennæ cylindrical, rather stout, first segment swollen below, bearing bristles; second segment shorter and more slender; third segment as long or nearly as long as the first two segments taken together, obtuse distally and bearing a clearly distinct, short, biarticulate style. The basal segment of the style is short and collar-shaped, the terminal segment more conical, and at its end with a microscopic style arising from a depression. Head very much broader than high, the face and front very broad; the latter somewhat wider above, depressed, almost saddle-shaped. Face rounded, convex, its outline in profile easily seen; everywhere except narrowly along the orbits clothed with fine hair; vertex much depressed, ocellar tubercle prominent, both with erect fine hair; occiput more or less densely clothed with hair and bristles above, below with a dense beard. Proboscis very small, slender. Thorax only moderately well arched, usually clothed on dorsum with fine erect pile and, on the lateral margin and posterior callosities, with fine, sometimes stouter, bristles; pleuræ with long pile upon the mesopluræ and before the halteres; scutellum wholly clothed with long erect pile, only seldom long slender bristles on the posterior margin. Abdomen broad, stout, compressed, all the segments on the middle of the sides with more or less well developed short bristles, and upon the posterior margins with pruinose cross-bands, entire or interrupted. Genitalia of male small; the last two segments of the abdomen usually partially retracted. Legs moderately stout with weak bristles, very numerous on the tibiæ and tarsi; pulvilli normal; the anterior tibiæ without a terminal claw-like spur. First posterior cell of wing variable, open, closed, or narrowed; remaining posterior cells wide open; the anal cell closed and slightly petiolate; the anterior branch of the third longitudinal vein forming a long letter S.

In uniting *Laphystia* and *Laphysctis* I am following Bigot Dipteres nouv. on peu connus, XVII, Annales de la Soc. Ent. de France, 1877), and Dr. Fr. Hermann (Beitrag zur Kenntnis der Asiliden, Berl. Ent. Zeit., L, 33, 1905). Bigot writes that the reciprocal similarity between *Laphystia* and *Laphyctis* is such that, in his opinion, it renders wholly irrational the separation of the types which have served in their establishment. Dr. Hermann says that the difference to be found in the width and breadth of the head, wing venation, hairiness of the hind tibiæ and size of the genitalia are only relative, and not to be relied upon for generic distinction. That this genus is intermediate between the Dasypogoninæ and the Laphrinæ may easily be seen by referring to Dr. Hermann's above-mentioned paper, page 31. It will be noticed that the figures 15–18 of the wing of *Laphystia sabulicola* show a marked variation in the union of the first and second longitudinal vein. Dr Hermann places *Asicyia* a synonym of *Laphystia* as he finds that intermediate stages are to be found between normal and vestigal pulvilli, and open and closed first posterior cells even in specimens of the species *Laphystia*.

In all the specimens which I have seen, a limited number, the submarginal cell has been closed at or a little before the margin of the wing. Mr. Jones (Trans. Am. Ent. Soc. Phila., XXXXIII, 274, 1907) has found a wide variation in connection with the first posterior cell, stating that ten specimens "vary in wing venation from having the first posterior cell slightly narrowed, through one closed in one wing and nearly closed in the other, to both closed." Dr. Williston has noticed this same variation. Mr. Jones finds that there is a great variation also in the color of the legs, stating that in the ten specimens above referred to that the color varied from nearly entire yellowish-red to specimens in which only the extreme base of the femora and apex of the tibiæ were reddish. The color of the legs of *sexfasciata* vary in less degree. With such variation in color in species which vary so little from each other structurally, new species should be erected only after study of ample material.

Osten Sacken, in his Catalogue, doubtfully refers *Dasypogon albiceps* Macquart (Dipt. Exot., Suppl , I, 69) from Texas to this genus. Of this species Macquart writes, "Head white. Thorax cinereus, with black stripes. Abdomen black, with white fascia. Legs black, knees reddish. Length 4 lines. A neighbor of *Laphystia sexfasciata.* Face, mystax, beard and front of a silvery white. Antennæ black, with light, white down, first segment with white pile; little yellow on the second. Abdomen, posterior half of each segment white. Legs with light pile and long white silky hair, knees yellow. Wings a little yellowish, veins normal."

SYNOPSIS OF SPECIES

1. Abdomen wholly pruinose except a small spot in the middle of the anterior margin of segments 6–7 **opaca.**
Abdomen with pruinose bands on the posterior margins of the segments 2.
2. Pruinose bands of the abdominal segments entire 3
Pruinose bands of the abdominal segments interrupted. **sexfasiata.**
3. Abdomen wholly black **flavipes.**
Abdomen partly reddish, especially on the posterior margins under the bloom . **limatula.**

Laphysta sexfasiata.

Dasypogon sexfasciata Say, Jour Acad Sci Phil, III, 50, 1822, Compl Works, II, 64
Dasypogon sexfasiata Wiedemann, Auss Zw, I, 408
Laphyctis sexfasiata Schiner, Ver Zool-Bot Ges, 1866, 693
Laphystia sexfasiata Loew, Berl Ent Zeit, 1874, 373
Trichs notata Bigot, Annales, 1878, 433 Bull Soc Ent France, 1879, 87
Laphystia subfasiata Bigot, Annales, 1879, 236
Laphystia sexfasiata Williston, Trans Am Ent Soc Phila, XI, 9, XII, 53

♂ ♀ —*Length* 8–11 *mm* —Hind femora and all the tibiæ at base and the knees yellowish, head and thorax grayish white pruinose with fine white pile abdomen above polished black, the posterior margins of all the segments with a rather broad grayish pruinose band which is interrupted on all the segments except the first and second

Pile of entire head and thorax snow-white that on the face and lower occiput dense, that on the front, ocellar tubercle and upper occiput sparser and erect the bristles of the occiput are fine and cannot be distinguished as such Antennæ wholly black the first segment with white bristles beneath, the second appreciably shorter than the first and more slender, the third segment a trifle longer than the first two segments taken together Thoracic dorsum grayish white pruinose, showing two indistinct median and two broader lateral stripes, the latter distinctly divided at the transverse suture by a line of whitish bloom Pleuræ densely grayish white pruinose, the pile of both dorsum and pleuræ fine and white the bristles of the lateral margins of the dorsum not well developed, scutellum every where with moderately dense white pile Abdomen as described above, the pruinose bands are slightly tinged with yellow, all the pile white, longest on the sides the bristles on the middle of the lateral margins rather obscure, venter grayish pruinose Legs black, the bases of the hind posterior femora and occasionally those of the middle pair and the bases of all the tibiæ yellowish or reddish pile and bristles wholly white pulvilli pale the bases of the claws white Wings hyaline, the veins toward the base yellowish

Type —Lost

Habitat —Avalon, N J (July 29, Aug 2, 15, 27), N Y (Aug 10), N C, Capon (Apr 19) and St Augustine (common along seashore, June, July, C W Johnson), Ga, Tex

Dr Williston has taken specimens of this genus from Montana and the Southern States, and regarded some of them as varieties of *sexfasiata* Since then Mr Coquillett has described the three following species Mr Jones, in Trans Am Ent.

Soc, XXXIII, pages 274 and 275, describes two other species, without specific names, which he believes to be new, but which present considerable variation, these should be taken into consideration before other species are created

Laphista flavipes.

Laphystia flavipes Coquillett, Proc Ent Soc Wash, VI, 180, July, 1904

Laphystia flavipes Hermann, Beitrag zur Kenntnis der Asiliden (IV), Dipt, Berl Ent Zeit, LIII, 152, 1908 Quotes orig description

♀—"*Length nearly* 10 *mm*—Black, the halteres and femora and tibiæ, except their apices, yellow, the hairs and bristles whitish, second segment of the antennæ about two-thirds as long as the first, the third as long as the first two taken together, rather slender, gradually tapering to the apex, the second segment of the style wider than the first, only slightly longer than wide, head and body densely gray pruinose, somewhat yellowish on the face, front and mesonotum, the broad front portion of the abdominal segments 2–6, except on the sides and the narrow hind margins of the first five segments, polished, wings hyaline, the axillary, first vein and bases of the others yellow, remainder of the latter brown"

Type—U. S N M, Cat No 7950 Two male specimens

Habitat—Montana and North Carolina (H K Morrison)

Laphystia limatula.

Laphystia limatula Coquillett, Proc Ent Soc Wash, VI, 180, July, 1904

Laphystia limatula Hermann, Berl Ent Zeit, LIII, 152, 1908 Quotes orig descrip

♂—"*Length nearly* 10 *mm*—Differs from *flavipes* as follows Second segment of the antennæ nearly as long as the first, the third robust, of nearly an equal width, mesonotum not gray pruinose, except along the lateral and posterior margins, that on the abdomen very thin, broad posterior margins of the last five segments reddish-yellow"

Type—U S N M, Cat No 7951

Habitat—La Luz, New Mexico (C H T Townsend)

In appearance *linatula* and *flavipes* are very much alike

Laphystia opaca (Pl IV, fig 1, Pl V fig 6)

Laphystia opaca Coquillett, Proc Ent Soc Wash, VI, 180, July, 1904

Laphystia opaca Hermann, Berl Ent Zeit, LIII, 152, 1908 Quotes orig descrip

♂—"*Length* 8 *mm*—Black, the halteres, bases of tibiæ and of the hind femora yellow, the hairs and bristles whitish; second segment of the antennæ about half as long as the first, the third broad and only slightly tapering at the apex; head and body densely grayish pruinose, three broad stripes on the mesonotum and a subtriangular spot at middle of base of abdominal segments 2–6 polished; the median stripe of the mesonotum is on its anterior third; wings hyaline, axiliary vein and the others yellow, remainder of the latter brown."

Type.—U. S. N. M., Cat. No. 7952. A single male.

Habitat.—Padre Island, Tex. (C. H. T. Townsend, June 29).

There are at the American Museum two male and one female specimens, collected by Prof. W. M. Wheeler at Galveston, Texas, June 5, which agree very well with the above description. They average about 10 mm. long. The bloom of the head is silvery white, that of the thoracic dorsum more grayish; as in *sexfasiata*, the scutellum is moderately clothed with erect white pile. This species differs from the other species, here included, in that the bloom of the abdomen covers the entire basal segment, and the lateral margins and a broad band on the posterior margin of the following segments, thus leaving only a subtriangular space at the base of segments 2–6 bare of bloom and polished. The stripes on the thoracic dorsum are not in these specimens as in the type male. The coloration of the legs is the same as in *sexfasiata*.

TRICLIS.

Triclis Loew, Bemerkungen Ueber Asiliden, 17, 1851.
Triclis Schiner, Fauna Austr., I, 132, 1862.
Triclis Schiner, Novara, 162, 1868; obs.

Loew, in establishing this genus in his *Bemerkungen ueber Asiliden*, gives only the following, which I have fully translated:

"A striking, most singular Dasypogon which has been sent to me with the remark that it comes from upper Italy, induces me to erect a singular genus, of which the most striking characteristic is the closing of the first posterior cell some distance from the margin of the wing—a characteristic which is often present in the Asilinæ, and still oftener in the Laphrinæ, but which, in the subfamily Dasypogoninæ, has been called to my attention for the first time in connection with this specimen. I name this new subgenus, which comes next to *Cyrtopogon*, *Triclis*, in reference to the singular closing of the cells on the hind board of the wing "

Schiner in his *Novara* appends to his description of *Triclis ornatus* the following —" a characteristic feature of the genus *Triclis* is also the shape of the cubital fork, the upper branch is always strongly "S" shaped, and so enters the foreborder of the wing as to leave a very wide opening between the two branches of the fork, in the form of the antennæ there appears a great variability in the different species, the third segment is often long and small in other species much shorter, and in more contrasting species very short and broad However, this antennal variability is not necessary for the erection of any genus-group, although it should not be overlooked "

More recent observations have proved that the first posterior cell of species of both *Laphystia* and *Triclis* is subject to considerable variation Dr Williston believes that *Triclis* should be a synonym of *Laphystia*, which it very closely resembles I am not in a position to have a definite opinion, as I have but a single specimen of *Triclis tagax* before me, and while I believe that *Triclis* may be a synonym of *Laphystia*, the proportionately narrower face, with the gibbosity confined to the lower portion, and the narrower and more deeply excavated front of this specimen, together with its more slender structure leads me to retain *Triclis* as a separate genus until more material is at hand

Triclis tagax (Pl IX, fig 3)

Triclis tagax Williston, Trans Am Ent Soc, XI, 9, pl I, figs 6, 6a 1883

♀ —*Length* 65 *mm* —' Black, whitish pruinose head wholly with light pollen and pile, segments of abdomen with a large semicircle in front and the anterior angles shining Wings hyaline

Face thickly white pruinose and with white hairs in the mystax, reaching nearly to the antennæ straight on the sides, in profile gently swollen below Antennæ black first and second joints short, of nearly equal length, third small, short Front faintly brownish, occiput thickly white pruinose on the sides, bear white Thorax black, the dorsum thickly covered with a short yellowish white recumbent pile, along the middle in front a shining stripe bristles slender, black Pleuræ thickly white pollinose with a small shining black spot above the middle coxæ, scutellum pilose, with a row of thin bristles along its edge Abdomen short, moderately broad, not much narrowed posteriorly, shining black, the posterior margins of the segments narrowly red, but obscured by a thick white pollen which leaves the black to form a large semi oval spot nearly reaching the hind margin in the middle and only narrowly separated from the small black spot on the anterior angles which extends to, or nearly to, the hind margin A circle of long bristly hairs near the tip black otherwise the short, not abundant, pile is yellowish, whitish or white Legs black, rather thickly clothed with short fine white pile, along the under side of the hind femora and tibiæ a little longer and more thickly erect pilose, as in *Dioctria* bristles mostly white Wings pure hyaline, the first posterior cell closed a little before the tip or at the tip, the fourth at a considerable distance before the border"

Type —University of Kansas A single specimen

Habitat —Kern Co, Cal

The Am Ent Soc of Phila possesses a single specimen from California

Triclis flavipilis.

Triclis flavipes Jones Trans Am Ent Soc Phila, XXXIII, 275 1907

♀ —*Length* 10 *mm* —Black, shining with a bluish tint Front wide, deeply excavated, ocelli on a prominence, yellowish red pruinose bristles on each side and those of the ocelli black Face thickly yellowish red pruinose, when viewed in profile no convexity can be seen beyond the margin of the eyes until half way below the antennæ, where the gibbosity is very pronounced Mystax not extending above the gibbosity, black on upper part and yellowish red on the lower part near the oral margin, a few reddish hairs immediately below the base of the antennæ Antennæ black, first joint longer than the second, third not as long as the first two taken together, style a little more than a fifth of the third joint, second joint of style more than twice as long as the first, hollowed out on the upper side, from which a microscopic bristle arises, first two joints of antennæ with black and reddish pile and longer black bristle-like hairs on the underside of the first joint Occiput with reddish pollen, occipito-orbital bristles black, pile of the occiput, oral margin and beard fine, grayish-white in color, that of the occiput having a reddish tint Thorax black, shining, covered with short, dense, yellowish red pile, longer on the posterior margin, a few bristles on the lateral margins black Scutellum of similar color and covered with pile of similar color to that of the thorax, with a row of thin, light colored bristles on the posterior margin Pleura black, covered with dense yellowish-white pollen and sparse, light-colored pile, a shining spot on the mesopleura extending obliquely downward toward the front coxæ Halteres and a fan-like row of bristles in front yellowish-white. Abdomen shining black, with a bluish tint, and covered with fine, dense, yellow pile, not easily seen unless viewed from profile. Pile of first two segments and lateral margins of the rest longer. Posterior lateral margins of all the segments golden pruinose, less so on the posterior segments Second segment of abdomen short, about as long as the first. Tip of abdomen with a circle of long bristle-like hairs. Legs black, coxæ grayish-white pruinose. Coxæ and femora with whitish pile, that of hind femora with a reddish tinge, tibiæ and tarsi with shorter pile of a more reddish tinge, bristles of tibiæ and tarsi a trifle lighter than those of the femora, a few on the tarsi black. Wings uniformly blackish."

Type.—University of Nebraska. A single female specimen.

Habitat.—Meadow, Nebr. (July, 1906, P. R. Jones).

Mr. Jones states that the wing venation of this species is identical with that of the figure of *T. tagax* Williston, Trans. Am. Ent. Soc., Vol. XI, Pl. I, fig. 6. That the gibbosity of the face on the lower part is similar to that of fig. 6a of the head, but the upper part and antennal prominence are barely visible when viewed from profile. The third segment of the antennæ is not as broad as that of *T tagax.* Mr. Jones places this species in this genus with the reservation that he believes that *Triclis* should not stand unless separated from *Laphystia* by some other character than the closed posterior cell.

CERATURGUS.

Ceraturgus Wiedemann, Analecta Ent., 12, 1824
Ceraturgus Wiedemann, Auss Zw., I, 414, 1828.
Ceraturgus Macquart, Hist Nat. Dipt., I, 288, 1834

Robust, nearly bare species with yellowish markings. Antennæ porrect, apparently five-jointed; first and second segments subequal; third elongate, fourth, very short; fifth, fusiform or elongate and densely pubescent. Head much broader than high; the gibbosity of the face reaching evenly to the antennæ: mystax in the female of neither abundant nor strong bristles; in the male, of abundant, almost silky, hair extending upward more thinly to the antennæ. Vertex strongly depressed; ocellar tubercle very prominent and bearing a tuft of hair; occiput with weak bristles in the female; in the male with more abundant hair. Proboscis held nearly vertical. Thorax well arched, with bristles above base of wings and on the posterior callosities; scutellum with bristles, sometimes very short. Abdomen robust, strongly convex, and but little tapering; lateral forceps of the male genitalia alone prominent and widely separated, thus giving the end of the male abdomen an "open" or "broken" appearance. Legs robust, normal, the fore tibiæ without a terminal claw-like spur. Submarginal and posterior cells widely open; anal cell closed at the margin or narrowly open.

Type.—*Dasypogon aurulentus* Fabricius.

SYNOPSIS OF SPECIES.

1 Terminal segment of antennæ fusiform; wings pure hyaline; body wholly golden pruinose except the thoracic stripes and a triangular spot at base of abdominal segments. **aurulentus.**
Terminal segment of antennæ nearly or quite linear; wings usually brownish-yellow 2
2 All the abdominal segments with a golden posterior cross-band 3.
Only segments 1–5 with a grayish posterior cross-band; pleuræ wholly grayish pruinose **? dimidiatus.**
3 Pleuræ black, with golden spots **cruciatus.**
Pleuræ thickly light-yellow pruinose **nigripes.**

Ceraturgus aurulentus.

Dasypogon aurulentus Fabricus, Syst. Antl, 166, 1805.

Dasypogon aurulentus Wiedemann, Dipt Exot, 288, 1821; Analecta Ent., 12, 1824; Auss Zw, 414; pl V, fig. 5, 1828.

Ceraturgus aurulentus Macquart, Hist Nat. Dipt., I, 289; pl VII, fig. 4, 1834.

Ceraturgus aurulentus Brauer, Wein, Ent Zeit., I, 56, 1883

Ceraturgus aurulentus Johnson, Psyche, X, III; 1903 (fig. of antenna).

♀.—*Length* 8–9 *mm*—Black, everywhere golden pruinose except the stripes of the thoracic dorsum and the proximal portions of the abdominal segments. Antennæ apparently five-jointed; first segment cylindrical; second, a little compressed and incrassate at tip; first and second segments subequal; third segment longer than the first two taken together; fourth very short; fifth, compressed, fusiform; the fourth and fifth densely pubescent. Stripes of thoracic dorsum very broad; the median stripe extending from the pronotum nearly to the scutellum; the lateral stripes bisected by a golden pruinose line along the transverse suture and drawn out to a point behind; they are separated throughout their length from the median stripe by a golden pruinose line The black on the proximal margins of the abdominal segments broadens out into a distinct triangle with its apex to the rear, last two segments wholly polished black Pile of entire body fine and golden Legs bright yellow, apical third of the front and middle femora and the apical fourth of the posterior femora black Wings hyaline

Habitat—N Y (type locality), Westville, N J (Aug 21, 1892, C W Johnson), Castle Rock, Del Co, Pa (Sept, 7, 1901, E Daecke), and Lehighgap, Lehigh Co, Pa (July 11, C T Greene)

This is an extremely rare species, and, until Prof Johnson made his capture in 1892 at Westville, N J, was spoken of as the "long lost *aurulentus*" I know of but three specimens in this country, one each in the three collections of Prof C W Johnson of Brookline, Mass, Mr E Daecke of Philadelphia, and the American Entomological Society, Philadelphia It is readily distinguished from *cruciatus* Say by its much smaller size, the almost omnipresent golden bloom, the black triangular spots of the abdominal segments, the yellow legs, the hyaline wings and the shape of the last antennal segment

Ceraturgus cruciatus (Pl IV, fig 2, Pl VII, fig 1)

Dasypogon cruciatus Say, Jour Acad, Sci Phila, III, 52, 1823, Compl Works, II, 66

Dasypogon cruciatus Wiedemann, Auss Zw, I, 381 1828

Ceraturgus fasciatus Walker, List, II, 367, 1849

Dasypogon cruciatus Loew, Besch, Eur Dipt, III, 124, 1873

Ceraturgus cruciatus Brauer, Wien, Ent Zeit, II, 56, 1883

Ceraturgus cruciatus Johnson, Psyche, X, 112 1903 (fig of antenna)

Dasypogon cornutus Wiedemann, see *Ceraturgopsis*

♂ ♀—*Length* 16–20 *mm*—Black, the polished thorax margined and spotted with yellow abdomen annulate with yellow wings dusky Pleuræ not wholly grayish or golden pruinose

Face brassy-yellow, mystax of same color, ocelli reddish, occiput densely golden pruinose with weak golden bristles Antennæ black, first segment broadly reddish below, terminal segment elongate and densely black pubescent, when denuded a slight but distinct projection is found on the outer side about one-third the distance from its base Thorax black, dorsum often with a reddish tinge, the median and lateral stripes very indistinct, scarcely noticeable, humeri, lateral margins, two spots above the humeri and more or less connected with them, and two small spots farther back on the middle of the dorsum on the transverse suture yellow. Six unequal spots on the pleuræ, a spot above the halteres and on the hind coxæ and the posterior margin of the scutellum, also yellow or golden. Halteres reddish. Abdomen polished black, tip in female sometimes reddish; each segment with a broad golden cross-band on its posterior portion: venter of all the segments except the first with a narrow golden band on the posterior margin; the first two bands being partially bisected. Legs varying from dark to pale ferruginous; the tibiæ and tarsi often nearly straw-colored. Wings varying from deep yellow and blackish to nearly hyaline. The thoracic and scutellar bristles are very short and yellow; the pleuræ are nearly bare except for a patch of slight pile on the mesopleuræ and sternopleuræ. Trichostical hairs long and rather dense. The thorax and abdomen above are thinly clothed with microscopic golden pile.

The male differs from the female in being somewhat smaller; in having the femora much darker, often black, and the general shade of color markings. Two males in the collection of the Massachusetts Agricultural College, and one male in the collection of Frederick Knab, now at the Holyoke (Mass.) Public Library, have grayish markings, and nearly all the other males which I have seen show a strong tendency toward a similar color. The clothing of the male is much finer, and upon the face nearly black. The lateral forceps of the genitalia are quite prominent and clothed with long pile, as also are the terminal segments of the abdomen below.

Type.—Lost.

Habitat.—North Saugus (July 15, F. H. Mosher), Holyoke (July 10, F. Knab), Chicopee (July 1, F. Knab), W. Springfield (June 27, F. Knab), Montgomery (Aug. 7, F. Knab), Mt. Tom (June 24, July 24, F. Knab), Amherst (June 23, 27, 30; July 6, 7, 8, 11, 12, 18; Aug. 5), Mass; New Haven (June 23, W. E. Britton), Conn.; N. Y.; N. J. (June 8, July 10, E. Daecke); Pa.; Fla.; S. D.; Ark.

This is a common species in Massachusetts and easily recognized. Specimens are apt to become greasy, and thus apparently lose their yellow markings.

Ceraturgus dimidiatus.

Dasypogon dimidiatus Macq., Dipt. Exot., Suppl. II, 51, 1847.
Dasypogon dimidiatus Walker, List, Suppl. II, 428, 1854.
Ceraturgus ? dimidiatus Bellardi, Saggio, II, 61, 1861.
Ceraturgus dimidiatus Brauer, Wien. Ent. Zeit., II, 56, 1883.

Mr. Samuel Henshaw has loaned me from the M. C. Z. a female *Ceraturgus* from Dallas, Texas. It is new to the United

States. I believe that it is Macquart's *Dasypogon dimiatus*, hitherto known from Mexico. The following description is made from this single specimen, which is in good condition.

♀.—*Length about* 20 *mm*.—Polished black, similar to *cruciatus*, but the bloom of head and thorax is wholly grayish, while that of the abdomen is only slightly golden, more nearly gray, and confined to the first five segments. The wholly black antennæ differ from those of *cruciatus* in that the third segment appears longer, and the terminal segment only about one-half as long. In *cruciatus* the thoracic dorsum appears devoid of bloom except on the lateral margins, humeri and the four small golden spots on the outside of the indistinct median stripe, two before, above the humeri, and two on the transverse suture. In this female the bloom covers the entire dorsum except the broad median and the lateral stripes, each lateral stripe being greatly abbreviated anteriorly and narrowly and indistinctly bisected along the transverse suture, thus appearing as two oval spots; the anterior spot being narrowly separated from the median stripe by a line of grayish bloom which appears more brownish along the middle of the spot, the posterior spot of each stripe being confluent with the median stripe, thus leaving the posterior portion of the dorsum, except on the sides and narrowly before the scutellum, bare. Face, front, occiput, pleuræ and coxæ wholly grayish pruinose; scutellum rather thinly grayish pruinose, more densely so on the posterior margin. In *cruciatus* each of the abdominal segments bears a golden pruinose posterior cross-band, in this specimen the bands are present only on segments 1–4, and possibly on segment 5, the remaining segments wholly black. Unlike *cruciatus*, the bands are produced narrowingly along the sides and nearly reach the anterior margin on segments 3 and 4. On the posterior lateral angles of segment 5 is a grayish spot. Proximal portion of the venter wholly grayish pruinose; the venter of the last five segments polished. Legs black, all the femora at base and tip, more or less broadly, reddish; the front and middle tibiæ and their tarsi reddish-yellow; the hind tibiæ and tarsi black, the basal half of the tibiæ reddish. Wings yellowish-brown, much darker on the basal half before the basal cells; all the submarginal and posterior cells broadly open, anal cell closed on the margin.

This is a more pilose species than *cruciatus*; the entire pile and bristles of the body are sordid white. In *cruciatus* the bristles of the thoracic dorsum and scutellum are but weakly developed, as is also the pile of the mesopleura and sternopleura; here they are well developed and the pile upon the pleuræ is much longer and denser, longer also is the pile of tergum and venter of the abdomen.

I have a male *Ceraturgus* also from Dallas, Texas, belonging to the M. C. Z., which is about 13 mm. in length and very closely resembles the male of *cruciatus*. The two basal segments of the antennæ are reddish (remaining segments of antennæ gone); there is a fine golden line on the posterior margin of the first abdominal segment, and pale golden spot on the posterior lateral angles of the second and third segments. The coxæ and trochanters are black, the femora chestnut, the tibiæ and tarsi yellowish. Basal portion of the wings are blackish; the outer portion nearly hyaline. The pleuræ are not wholly golden or grayish pruinose, but more as in *cruciatus*.

Ceraturgus nigripes.

Ceraturgus nigripes Williston, Trans. Am Ent. Soc., XIII, 287, 1886.

"♂.—*Length* 14 *mm.*—Abdomen with golden pruinose posterior cross-bands, legs black. Antennæ in structure like those of *C. cruciatus*, the style somewhat shorter, black; the first segment brushy black hairy, the second segment less so Face projecting a little more below than in *C cruciatus*, densely light golden pruinose, and with long, soft, rather abundant light yellow pile below, extending up more thinly in the middle; occiput below with white hair; above, the occipito-orbital hairs are black, longer and more abundant than in *C. cruciatus;* front polished black, with black hair except some yellowish ones on the ocellar tubercle, the orbits narrowly golden pruinose. Dorsum of thorax thickly golden pruinose, leaving two not very broad median brownish-black stripes, separated by a line, and on each side two large, oval, black spots narrowly separated by a sutural line; pile or hair rather long and erect, on the front part yellowish-white, broadly behind black, the bristly hairs of the posterior callosities and the scutellum light yellow, pleuræ thickly light yellow pruinose, below and on the coxæ more grayish. Abdomen in shape like that of *C. cruciatus*, with short, but abundant, erect, light yellow pile; each segment with an opaque light golden yellow posterior cross-band, composed of dense bloom, moderately narrowed on the sides; that on the first segment narrowest, that on the second comprising about one-half the segment, on the last leaving only a slender anterior black band. Legs pitchy black, the tibiæ and tarsi fulvous pubescent; the pile of the coxæ, especially the fore ones, and of the femora below, long and silky white. Wings pure hyaline; neuration as in *C. cruciatus*."

The female, which I have seen, agrees with the description.

Type —University of Kansas

Habitat —Georgia (type), Black Mts, N C (June 26, W Beutenmuller)

Mr W Beutenmuller captured two specimens among the Black Mts, N C, of which one is at the American Museum, and the other, a female, at the National Museum

? Ceraturgus niger.

Ceraturgus niger Wiedemann, Dipt Exot, I, pt 2, 25, pl II, fig I, 1838

Ceraturgus niger Walker, List Suppl II, 378, pt desc

Taracticus niger Osten Sacken, Cat, 72 1878 (gen ref)

? Cearaturgus niger Brauer, Wien, Ent Zeit, II, 54, 56, 1883

Ceraturgus niger Williston, Trans Am Soc, XI, 1884 (doubts generic position)

♀ —*Long* 4 *l* *niger* —Abdomine segmentis albo maculis (Tab 2, fig 1)

Face et front d'um jaune grisratre Moustache simple, jaunatre Antennes noires Thorax a duvet roux grisatre et bandes noires, l intermediaire divisee par une ligne Abdomen à reflets bronzes deuxienne quatrieme segments à petite bande blanche de chaque côté, au bord posterior Pieds fauves un peu de noir aux genoux intermediaires et posterieurs jambes noires et articles des tarses noirs a l' extrémité Ailes jaunâtres

Del' Amerique boreale

CERATURGOPSIS.

Ceraturgopsis Johnson, Psyche X 111 1903

Ceraturgopsis differs from *Ceraturgus* only in the structure of the terminal segment of the antennæ, which is much shorter than in *Ceraturgus cruciatus*, rounded, and with a slight lobe-like projection on the outer side about two thirds the distance towards the apex, which bears a short spine, and is entirely naked, while the corresponding segment of either *Ceraturgus cruciatus* or *aurulentus* is densely pubescent

There is some doubt in my mind as to the validity of this genus The significant features are the nakedness of the terminal segment of the antennæ and the presence of the projection with the short spine (Pl IV, fig 3) Upon denuding the corresponding antennal segment of *Ceraturgus cruciatus*, a slight, but distinct, projection is found on the outer side about one-third the distance from its base In nature this is concealed by the pubescence and is easily overlooked Whether or not the rare *C aurulentus* bears a similar projection cannot be determined until more material is at hand I do not consider the difference in the shape of the terminal segment, as found here, of any generic value, for the difference in the outline between the terminal segments of *aurulentus* and *cruciatus* is no less than that between *cruciatus* and *cornutus*

Can it be that *Dasypogon cornutus* Wiedemann, which Prof Johnson has made the type of this genus, is an extreme variation and that the annectant species may be found to bridge this seeming difference?

Type —*Dasypogon cornutus* Wiedemann Two female specimens in the collection of Prof C W Johnson, Curator of the Boston Society of Natural History

Ceraturgopsis cornutus (Pl VII, fig 6)

Dasypogon cornutus Wiedemann, Auss Zw, I, 382, 1828

Dasypogon cornutus Osten Sacken, Cat, 66, 1878 (syn of *Ceraturgus cruciatus* Say)

Ceraturgopsis cornutus Johnson, Psyche, X, 111, 1903 (figure of antenna)

♀ —*Length* 16–18 *mm* —Black, similar to *Ceraturgus cruciatus* but more robust and more pronounced golden pruinose Head everywhere, except on the ocellar tubercle, with thick golden bloom, pile of mystax, beard and bristles and pile of occiput also golden antennæ black, segment 1 yellow, segments 1 and 2 short, subequal segment 3 long and slender, segment 4 small, very short, segment 5 more or less rounded with a slight lobe-like projection on the outer side near the apex bearing a small spine, the entire segment wholly free from the pubescence found in *Ceraturgus cruciatus* and *aurlentus* Thorax everywhere golden pruinose, except along the sutures of the pleural scerites, on the broad median geminate stripe extending backward almost to the scutellum, and on two rounded lateral spots, one anterior, the other posterior, to the transverse suture, reddish-brown, the lateral spots behind the transverse suture coalescing with the median stripe Abdomen black, polished the posterior margins of all the segments broadly golden pruinose Legs robust, testaceous Wings yellowish, the veins wholly so, the submarginal and posterior cells open All the pile and bristles of the body golden

Habitat —Ormond, Fla (Apr, Mrs A T Slosson)

Described from two females in the collection of Prof C W

Johnson, which are the type specimens of this genus. There is also a specimen at the National Museum.

This species is easily distinguished from *Ceraturgus cruciatus* Say, of which it was made a synonym by Baron Osten Sacken, by its more robust abdomen and by its terminal antennal segment being free from pubescence, more rounded and bearing a distinct spine, as above noted. The general color of the body is golden, due to the golden bloom, while the black of *cruciatus* is much more pronounced.

MYELAPHUS.

Myelaphus Bigot, Bull. Soc. Ent. France, 1882, XCI, No. 9, p. 112.

Myelaphus Williston, Trans. Am. Ent. Soc., XI, 5, 1884.

Antennæ apparently with five segments; first segment about three times as long as the second, third elongate, fourth and fifth of nearly equal length, third and fourth at the tip with two lobes, or processes, reaching to about the middle of the following segment.

Head broader than the thorax, considerably broader than high. Face a little less than one-third as wide as the head, its sides very nearly parallel, diverging but very slightly below, bare, smooth and polished, on the oral margin in front with a thin row of moderately long bristles; in profile gently receding, above the middle with a moderately large obtuse tubercle (wanting in *lobicornis*), not reaching quite as far forward as the base of the antennæ, between antennæ and facial tubercle gently concave, below the tubercle to the oral margin considerably receding, nearly straight; the oral margin in front is distinctly above the lower borders of the eyes, so that the lateral margins of the mouth are considerably oblique and straight. Antennæ situated upon a large obtuse tubercle, not quite as long as the dorsum of the thorax, composed of five segments as in *Ceraturgus*, all of which are distinctly separated from each other; first segment cylindrical, elongate, rather more than three times as long as the second; second segment short, but little longer than broad; third segment distinctly longer than the first two put together, somewhat compressed, only a little broader, terminating in two lateral lobes, or processes, which extend as far as the insertion of the second segment of the style; fourth segment, or first segment of the style, somewhat "Y" shaped, the terminal lobes being rather more than one-half the entire length of the segment, longer and more slender than those of the third segment; fifth segment, or second segment of the style, longer than the entire length of the preceding, narrowed, almost pedicellate at base, flattened beyond the tip of the lobes of the preceding segment, and then obtusely pointed, somewhat irregular in shape and shallowly sulate, clothed with very fine short pile.

Thorax convex, nearly bare, wholly without macrochætæ except a very few short intra-alar ones. Legs rather stout, without macrochætæ except a few short ones at the tip. Wings as in *Ceraturgus cruciatus*, but broader, marginal and first posterior cells open; the posterior intercalary vein arises from the posterior basal transverse vein a short distance from the base of the discal cell. In *melas*, the type, and *rufus*, the fourth posterior cell is broadly open, in *lobicornis* it is open, closed or petiolate. Anterior cross-vein near middle of the discal cell.

Abdomen in structure rather like that of *Dioctria*, shorter than the wings, the sides nearly parallel, or gently concave, to the tip of the fifth segment in the male, in the female the fifth segment gently narrowed behind; a little narrower than the thorax in the male, in the female about as wide; flattened, so that transversely it is only convex above, gently grooved at the incisures, each segment being gently convex longitudinally; smooth, nearly bare, except sparse very short pile; segments of nearly equal length, the sixth a little shorter, the seventh very short. Hypopygium small.

This description is drawn from a male of *melas*, and a female of *rufus*, which agree closely in structure. In *lobicornis* the antennal protuberance is more obtuse, and the face more flattened, in profile very narrow, and the prominence near the middle wholly wanting. The fourth posterior cell variable, and the first posterior cell strongly coarctate. From the diagnosis of this genus given by Monsieur Bigot, there are some differences which might render the recognition doubtful. The antennæ are not as long as the head and thorax combined, but considerably shorter, and the third segment is at least one-half longer than the first; the third segment has two processes like the fourth segment. There are but two segments in the style, as in *Ceraturgus*.

Type.—*Myelaphus melas* Bigot.

The above description has been taken almost bodily from Dr. Williston's paper above cited. With material now in collections it cannot be bettered. I have seen the specimens of *melas* and *rufus* used by Dr. Williston, and many specimens of *lobicornis*. When more collecting has been done, I believe that interesting facts in variation will be discovered.

SYNOPSIS OF SPECIES.

1. Face, in profile, wholly without a protuberance near the middle; head and thorax black; legs and abdomen for the most part yellowish-red **lobicornis.**
Face, in profile, with a moderately large obtuse tubercle . 2
2. Wholly black species .. . **melas.**
Yellowish-red species . .. **rufus.**

Myelaphus lobicornis.

Ceraturgus lobicornis Osten Sacken, West. Dipt., 287, 1877
Ceraturgus lobicornis Brauer, Wien. Ent Zeit, II, 56.
Myelaphus lobicornis Williston, Trans Am Ent. Soc. XI, 7, XII, 53 XIII, 288 (additional notes).

♂ ♀ —*Length* 10–12 *mm* —Head and thorax wholly black; coxæ, trochanters, more or less of the base of the four fore femora, tips of the tarsi narrow, lateral margins of the abdomen black or blackish; legs and abdomen yellowish-red. Wings in the male tinged with brown, darker, sometimes dark brown, in front toward the base; in the female the basal half yellowish. Face without gibbosity, most prominent above where there is a slight protuberance upon which are borne the antennæ.

Face for most part bare, polished black, often with a golden pruinose stripe on each side above the golden mystax. Antennæ wholly black; front polished. Thorax with short, closely appressed golden pile, not dense on the dorsum above, but quite so on the lateral margins, pronotum, meso- and hypopleuræ and scutellum. A stripe from the base of the wings to the middle coxæ bare, polished. Halteres yellow usually with a pinkish tinge. Abdomen polished, with sparse microscopic pile; genitalia red with white pile, the extreme base and the lateral margins of the segments above and the venter usually black. Legs yellowish-red, the basal half of the front femora are usually black. The hind femora are thicker than the others. Dr. Williston (loc. cit.), in speaking of a male specimen from Kern County, Cal., thinks it strange that Osten Sacken did not mention "the closed and briefly petiolate fourth posterior cell." In only one of the type specimens from Idaho is the fourth cell barely closed at the margin, the rest are open. This cell is variable.

Type.—M. C. Z. Two male and two female type specimens in Osten Sacken's collection, and the two females in that of Loew.

Habitat.—Type material all from Snake River, Idaho, except one female from California. Kern County, California (Williston).

The female co-type from California has the face, front and thorax, excepting three indistinct stripes on the thoracic dorsum, the coxæ and neighboring region, proboscis, palpi and basal segments of antennæ (third wanting) reddish. It agrees in size with the other type specimens, and probably represents a variation. It answers quite well to the description of *rufus*, but does not come near it in size.

Myelaphus melas (Pl. X. fig. 3.)

Myelaphus melas Bigot, Bull. Soc. Ent. France, 1882, No. 9, 112.
Myelaphus melas Williston, Trans. Am. Ent. Soc. XI, 5, 1884 (Pl. 5, figs. 1, 1a).

♂.—*Length* 14.5 *mm.*—Black, abdomen polished; halteres and pulvilli, yellow; wings black, more dilute behind and at tip.

Face smooth, polished, bare, in the middle on the tubercle, broadly and indefinitely pitchy red; bristles on the oral margin yellowish-white, with one or two black ones on the sides; beard short, sparse, black. Front on the sides near the eye with a few short, black bristles. Antennæ wholly black; on the upper sides of the first and second segments with a few short black hairs. Thorax deep polished black, above with a blue reflection, the dorsum wholly without markings, but covered with very short sparse black hairs; a minute spot on the humeri red, and the post-alar callosities pitchy black. Pleuræ very smooth, polished, except on the upper part of the sternopleuræ and on the mesopleuræ, where it is moderately thickly covered with short pile, black above, whitish below. All the coxæ on their outer sides with sparse whitish pile, and at their lower ends with a few short whitish bristles. Halteres yellow, the extreme base a little brownish. Abdomen polished black, with very short, rather sparse black hairs, slightly mixed with whitish on the sides of each segment; on the hypopygium with longer light yellowish or whitish pile. Legs deep black, the front and middle knees very narrowly yellowish, the pulvilli and base of claws light yellow; on the front tibiæ below, their tarsi, and on the middle tarsi, less so, with reddish pubescence. Wings blackish on the anterior portion toward the base, along the posterior and outer part more dilute, but still slightly tinged with brown or blackish; first posterior cell not at all narrowed at the margin, forth posterior cell broadly open, the fifth vein at the tip slightly curved backward. One specimen.

Type.—Bigot collection.

Habitat.—California (type); Kern County (S. W. Williston).

This description is that of Dr. Williston. He is in doubt as to its specific identity, but I believe that he is correct. Bigot very briefly diagnosed his type as follows: "Long, 15 mm. Totus niger, abdomine nitido; halteribus et pulvillis flavis; alis nigris, intus et apice parum dilutioribus, Oculis nudis.—California."

Myelaphus rufus.

Myelaphus rufus Williston, Trans. Am. Ent. Soc. XI, 7, 1884, XIII, 288, notes, 1886.

"♂ ♀.—*Length* 17 *mm*—Yellowish-red; the third segment of the antennæ and the style, proboscis, occiput, three broad abbreviated stripes on the dorsum of thorax, two spots on the lower part of the pleuræ and tips of claws black.

Face, front and first two segments of the antennæ reddish-yellow, polished; the face below, near the eyes and on each side of the base of the antennæ lightly yellowish dusted. Bristles of the oral margin yellowish-white; on the sides of the front a few shorter yellow ones. Third segment of antennæ and the style deep black; the first segment in one male is black. Proboscis black, the palpi yellowish. Occiput black, thickly yellowish pruinose on the sides; occipito-orbital bristles short, thin, and, like the sparse short beard below, are yellow. Dorsum of thorax yellowish-red, with three broad black stripes separated from each other by linear intervals; the lateral ones begin some distance behind the humeri and extend to within a short distance of the scutellum, on the posterior part narrow; the middle one begins at the prothorax and has well defined edges to the transverse suture, immediately behind the suture the stripes become obsolete. The dorsum is clothed with short, not very abundant golden pile, and has three or four short, inconspicuous yellow intra-alar bristles. Pleuræ yellowish-red except a large spot above the middle coxæ and another nearly confluent smaller one above the hind coxæ, which are smooth, polished, pitchy-black. On the mesopleuræ and upper part of the sternopleuræ, with golden-yellow pile, modetately dense; just beyond this there is smooth polished space. Halteres yellow. Abdomen red, darker, somewhat ferruginous along the tergum; very highly polished and clothed with sparse short golden pile. Legs wholly reddish-yellow, only the tips of the claws black; pulvilli and the base of the veins and cells are yellow; of the male wholly black, except at the very base. The first and fourth posterior cells a little more narrowed at their outer parts than in *melas;* in one male, the fourth is closed in the margin."

Type.—University of Kansas. A single female specimen.

Habitat.—Kern Co., Cal. (type). March.

I have seen a specimen at the National Museum taken in the same locality in March, which agrees with the description.

DICOLONUS.

Dicolonus Loew, Cent., VII, 56, July, 1866.
Dicolonus Schiner, Verh. Zool.-Bot. Ges., XVI, 847; Oct., 1866 (quotes original desc).

More or less pilose species with fine hair-like bristles hardly distinguishable as such. Head small, scarcely broader than the thorax, vertex but little depressed. Face moderately broad, in profile showing two characteristic protuberances, the facial gibbosity below or on the middle, and bearing a dense mystax of fine, hair-like bristles, and the antennal tubercle above clothed with forward directed hair and bearing the antennæ. Antennæ longer than the head is high, rather stout; first segment cylindrical, about twice the length of the short second segment, both abundantly clothed with short hair above and below; third segment sublineate and subequal to the first two taken together, gradually tapering toward the tip; style short, obtuse, at base equaling in width the third segment; both with a microscopic pubescence. Abdomen of female robust, rather broad; of the male, more cylindrical. Legs moderately robust, front tibiæ without terminal claw-like spurs, all the tarsal segments subglobular, pulvilli normal. Wings proportionately broad, all the posterior cells wide open; the anal cell narrowly so.

Type.—*Dicolonus simplex* Loew.

SYNOPSIS OF SPECIES.

Facial gibbosity more even below, rather suddenly constricted above; body with abundance of erect pile . ...**simplex.**

Facial gibbosity greatest in the middle and gradually receding above and below, less pilose species. **sparsipilosum** n. sp.

Dicolonus simplex.

Dicolonus simplex Loew, Cent., VII, 56, 1866.

Dicolonus simplex Williston, Trans. Am. Ent. Soc., XI, II, 1884, pl. I, fig. 4.

♂ ♀.—*Length* 10–11 *mm*—Wholly polished black, clothed with rather dense furry light yellow pile, but this nowhere fully concealing the ground color.

Head wholly yellowish pilose except that on the palpi, on the outer edge of facial tubercle, on the antennal tubercle, first segments of antennæ, front and narrowly on the occipital orbits, where it is black; that on the antennal tubercle sometimes yellowish. Facial tubercle on the lower portion of face rather even, more suddenly constricted above. Extreme tip of abdomen usually with some black pile intermixed with the yellow. Legs wholly black, thickly clothed with the same yellowish pile and weak bristles as the body; claws black, very narrowly reddish at the base. Wings grayish; the second basal, anal, and axiliary cells except distally, and the discal cell, appear milky-white when viewed on about the same level from behind or when over a dark surface.

Type.—M. C. Z. A single female.

Habitat.—Cal.; Los Angeles Co., Cal. (D. W. Coquillett).

There are several specimens of this species at the National Museum.

Dicolonus sparsipilosum n. sp. (Pl. IX, fig. 2.)

♂.—*Length* 7 *mm.*—Wholly polished black with bluish reflections; to the unaided eye nearly bare, not clothed prominently with furry, erect pile.

This species is very closely related to the Californian *simplex*, but differs noticeably in the scarcity of the pile. The pile and exceedingly weak bristles are throughout yellowish, as in *simplex*, but the pile is very short and has a tendency to be appressed, while in *simplex* it is longer, furry and erect. The pile of the facial gibbosity is less in extent and without any black; the gibbosity itself is decidedly greatest in the middle and gently rounds off to the face above and below; in *simplex* it is more even and more suddenly constricted above. Like *simplex*, the pile of the antennal tubercle, basal segments of antennæ and front is black. Pile of palpi black and yellow mixed, and the black pile narrowly bordering the occipital orbits is hardly perceptible. Pile of thorax and abdomen very short, appressed, thickest on the sides of the dorsum and on the pleuræ of the thorax and on the sides of the abdomen. Legs wholly black, only slightly clothed with very pale pile and on the tibiæ and tarsi with very weak, inconspicuous bristles; coxæ with long, coarse pile; claws black, reddish at base; pulvilli pale. Wings dusky hyaline, darker along the costa; the veins very slightly bordered with fuscous; the whole of the second basal, anal, axiliary and discal cells milky-white.

Type.—Two male co-types, deposited one each in the collection of the Massachusetts Agricultural College, and that of the Montana Agricultural College.

Habitat.—Bozeman, Mont., 4,800 ft. elev. (June 25, E. Koch); Col.

ECHTHODOPA.

Echthodopa Loew, Cent., VII, 27, 1866.
Echthopoda Loew, Beschr. Europ. Dipt., II, 78, 1871.
Echthodopa Schiner, Verh. Zool.-Bot. Ges., XVI, 846, 1866. (Quotes orig. desc.)

Echthodopa does not differ from *Dioctria* except that the lower third of the face is convex and bears a dense mystax; and that the middle and hind femora bear several short strong bristles. In *Dioctria* the femora are without bristles. The only two species in the United States belonging to this genus, *formosa* and *pubera*, are larger and more robust than our species of *Dioctria*.

Type.—*Echthodopa pubera* Loew

SYNOPSIS OF SPECIES

Pile of palpi black; wings nearly hyaline; Eastern species **formosa.**
Pile of palpi yellowish; wing-veins bordered with fuscous; Western species .. . .**pubera.**

Echthodopa formosa.

Echthodopa formosa Loew, Cent., X, 22, 1872.

♂ ♀.—*Length* 13–17 *mm*.—Polished black, tibiæ clear bright yellow, except their distal portions; mystax golden in the male, whitish in the female; the palpi of both sexes, and the rather large hypopygium of the male with black pile.

Black; tibiæ clear bright yellow except the distal third of the fore and middle, and the distal two-fifths of the hind pair, which are dark chestnut. Face narrower in proportion than in *pubera*, with a dense golden pubescence; front polished black. Mystax dense, golden in the male, in the female thinner and paler, pile of basal segments of antennæ, frontal orbits, ocellar tubercle, and occiput above, more fulvous, of the beard and proboscis much paler Antennæ black, elongate, segments 1 and 2 cylindrical, segment 1 a trifle longer, segment 3 longer than segments 1 and 2 together, style distinct from segment 3 and about one fourth as long Dorsum partially concealed beneath fine appressed fulvous pile and longer and weak bristles of the same color above the wings, on the posterior portion, and on the posterior margin of the scutellum, pleuræ polished, but obscured in places by a pale yellow bloom and short fine pile, especially on the sides of the prothorax and on the meso- and sternopleuræ, trichostical pile long and pale, halteres yellowish Abdomen polished black, scarcely at all obscured by the short yellowish pile, which on the sides of segments 1 and 2 is long Hypopygium larger than that of *Echthodopa majus* (European), black, with black pile Legs black, coxæ with rather long whitish hair, more abundant on the two anterior pairs, femora, excepting the fore pair, with a few short, stout bristles on the anterior side, pile of femora and the yellowish portion of the tibiæ golden in the male, pale in the female of the rest of the tibiæ and tarsi black, bristles on the tarsi black Claws black, yellowish at base, pulvilli tawny Wings very faintly blackish hyaline, all the posterior cells open, the anal narrowly so, the anal, axillary cells, and second basal slightly milky white in the male wholly clear in the female

Type—M C Z A single male in excellent condition

Habitat—North Saugus, Mass (E A Back, June 14, 1906) Delaware Co , Pa (July 1, 1892, C W Johnson), Va , N C

This species may readily be separated, at a glance, from *pubera* by its deeper, clearer, and more shining black color, its clearer wings, and by the brightness of the yellow portion of the tibiæ Its pile is also less in quantity and richer in color *pubera* is only moderately polished, the pile paler, the wings more dusky, and the veins bordered with fuscous

During the summer of 1906, in a large cage built over a small oak tree in the woods for the rearing of parasites in connection with the gypsy moth work, I captured two specimens of this species which evidently had emerged from the partially moss-covered ground

Echthodopa pubera (Pl VIII, fig 6)

Echthodopa pubera Loew, Cent , VII, 27 1866

Echthodopa pubera Jones, Trans Am Ent Soc , XXXIII, 276, 1907 (locality note)

Echthodopa pubera Insect Book, Howard, 1902, Pl XIX, fig 2

♂. ♀—*Length* 11.5–13 *mm.*—Very similar to *formosa* in struture of body and antennæ, but only moderately polished black; basal portion of tibiæ dull reddish, not clear bright yellowish; pile and bristles of entire body, including that of the palpi and tarsi, pale yellow; wings more dusky, and clouded along the veins.

Black; only moderately polished; base of the hind tibiæ and the basal half of the anterior pairs dull reddish. Face and occiput pale golden pubescent; front polished black. Mystax in male golden; in the female, and the pile and bristles on the rest of the body in both sexes very pale yellow, sometimes nearly white. Thoracic dorsum nearly opaque; pubescence and bristles of both dorsum and pleuræ as in *formosa*, only paler and often more prominent. Halteres pale. Abdomen of female more robust than that of the male, as in *formosa*. Coxæ with rather long pale hair, more abundant on the anterior pairs; the pile and bristles of the legs pale. Wings more dusky than in the more clear-winged *formosa*, all the veins bordered distinctly with fuscous; all the posterior and anal cells open; the second basal, anal, and axillary cells wholly milky white in the male, in the female not so.

Type.—M. C. Z. The type series consists of two males and nine females.

Habitat.—Neb. (type); Lincoln, West Point, Harlan, and Sioux Counties, Neb. (P. R. Jones); Wyo.; Mont.; S. D.; Pullman, Wash.

DIOCTRIA.

Dioctria Meigen, Illig. Mag., II, 270, 1803.
Dioctria Meigen, Syst. Beschr., II, 180, 1820.
Dioctria Macquart, Hist. Nat. Dipt., I, 289, 1834.
Dioctria Schiner, Fauna Austr., I, 119, 1862.
Dioctria Coq., Can. Ent., XXV, 80, 1893 (synopsis of species).

Nearly bare, small or rather small species, polished, and often metallic, black. Head clearly broader than high; face flattened, rather broad, bare, slightly protuberant on oral margin to which the mystax is confined; vertex rather deeply excavated, ocellar tubercle prominent. Antennæ approximate, elongate, borne upon a protuberance, very slight in some species, but often highly developed (*resplendens* and several European species): segments 1 and 2 cylindrical, slender, subequal, or segment 1 excelling in length; segment 3 usually equalling in length segments 1 and 2 taken together, linear, as in *vera*, or broader and more rounded at tip as in *albius*, sometimes densely microscopically pubescent, usually with at least some pile; style short, usually thick, obtuse, and not easily distinguishable from the third segment as in *vera*, or nearly setaceous as in *albius*, varying in length from one-sixth to one-half the third segment.

Dorsum of thorax usually with pubescence and weak bristles; pleuræ polished, with characteristic markings in fine pubescence; scutellum thin, usually projecting and always distinct from the well-rounded metanotum, often with fine short pile on its posterior margin, never or seldom with bristles. Abdomen very narrow and cylindrical, ofter broader beyond the third segment in the female. Legs often slender, hind metatarsi sometimes normal as in *albius*, or large as in *vera*. Front tibiæ without a terminal claw-like spur; hind femora without strong bristles; pulvilli normally developed. Wings rather large; all the posterior and the anal cell wide open.

Type.—Asilus ælandicus.

SYNOPSIS OF SPECIES

1	Wings on the basal half yellow, on the apical half black.	2
	Wings not marked thus, nearly uniformly darkish	3.
2	Legs wholly black, length 4 mm	**parvula.**
	Legs partly reddish-yellow, length 7 mm	**sackeni.**
3.	Abdomen wholly black	4
	Abdomen and legs partly reddish	6
4.	Legs wholly black	5
	Legs black, tibiæ for most part reddish-yellow, mystax black	**nitida.**
	Femora black above, reddish-yellow below, mystax golden	**vera.**
5.	Mystax black	**albius.**
	Mystax fulvous and dense, thorax and abdomen beautifully greenish-black	**resplendens.**
6	Antennal style nearly one-half as long as the third segment, coxæ red	**pusio.**
	Antennal style one-sixth as long as the third segment, coxæ black.	**rubida.**

Dioctria albius (Pl III, fig 8, Pl IX, fig 8)

Dioctria albius Walker, List, II, 301, 1849

Dioctria albius Osten Sacken, West. Dipt , 287 (notes), 1877

Dioctria albius Williston, Trans Am Ent Soc , XI, 8, 1884

♂ ♀ —*Length* 7–9 5 *mm* —Wholly polished black, abdomen with coppery reflections, face brassy yellow pruinose, thoracic dorsum with golden down; legs wholly black

Slender black species with face, and often the front, brassy yellow pruinose, the occiput with grayish bloom, particularly prominent along the orbits, mystax confined wholly to the oral margin black, black also is the rather long pile of the basal segments of antennæ, frontal orbits, ocellar tubercle and occiput, the scanty beard and pile of the black proboscis and palpi white Antennæ black segments 1 and 2 subequal, cylindrical, the second somewhat incrassate at tip, segment 3 spindle-shaped, a trifle longer than segments 1 and 2 taken together, style very short, sometimes pointed, often blunt Thoracic dorsum clothed with light golden pubescence which is much more dense on the sides than elsewhere bristles weak, black, pleuræ polished on the mesopleuræ just below the dorsopleuræ suture with golden pubescence on sides of prothorax posterior portion of the sternopleuræ and above the posterior coxæ trichostical pile fine, pale yellow Scutellum bare, polished Halteres whitish yellow Abdomen slender, polished black, with coppery reflections segments 1 and 2 on the sides with fine pale golden or white pile rest of abdomen with very sparse microscopic pale yellow pile, which in several California specimens is more pronounced, but never at all obscuring the ground color Legs black, though slightly variable the coxæ white pruinose and white pilose all the femora below with minute denticles and thicker white pile tibiæ and tarsi with scant pile and bristles claws black pulvilli tawny. Wings faintly blackish hyaline, the basal portion in the male very apt to be whitish, all the posterior cells broadly, and the anal cell narrowly, open

Type —British Museum

Habitat —White Mts , N H , and Catskill Mts and the Palisades, N Y (Osten Sacken), Amherst, Mass (June 13 and July 28), Conn , N J (July 19, 20, 24, 29, 30, E Daecke), Montg Co , Pa (May 30, C W Johnson), Potomac Cr (May 22), and Dixie Lndg (June 1), Va , N C , Ga , Fla , Wash (S W Williston), Cal (Osten Sacken)

In his Western Diptera, Osten Sacken speaks of ten male and female specimens from the White Mts, N H , Catskill Mts and the Palisades, N Y , as follows —"some of the males have the whole auxiliary region of the wing distinctly whitish, while in others the whitish tinge is very distinct on the whole proximal half of the wing One of the males from the White Mts has the proximal two-thirds of the wing pale yellowish, the distal third blackish, the tibiæ yellowish-red except at the tip, the fore femora yellowish-red except a broad black stripe on their upper surface The Californian specimens show the same tendency to vary in the coloring of the wing as do the Atlantic specimens" I have seen the above-mentioned specimens and lay particular stress upon the variations in the coloration of the wings in the male, as I believe that Dr Williston's *sackeni*, with more extended collecting, will prove to be but a male variety of *albius* Prof C W Johnson has a typical *sackeni*, except that the mystax, pile of front, occiput, and antennæ is pale golden instead of white, taken at North Mt , Pa

Dioctria nitida.

Dioctria nitida Williston, Trans Am Ent Soc , XI, 8, 1884

♂ ♀ —*Length* 11-13 *mm* —Polished black, wonderfully like *albius* but larger, and all the tibiæ, except their tips, bright reddish-yellow Face densely, front more thinly, brassy yellow, occiput grayish pruinose, especially along the orbits Proboscis, palpi and antennæ, black, the last in structure similar to those of *albius* pile of mystax, basal segments of antennæ, frontal orbits, ocellar tubercle and upper occiput black pile of lower occiput and proboscis white Thoracic dorsum with very short fine golden pubescence denser on the sides than elsewhere, but with golden, not black, bristles, which are more numerous above the insertion of the wings than in *albius* pleuræ polished, with four light golden spots arranged as in *albius* trichostical pile pale yellow, scutellum bare, polished Halteres yellowish white Abdomen polished, black, with coppery reflections pile sparse, golden, microscopic longer on sides of segments 1 and 2 Legs black, coxæ white pruinose, with white pile as in *albius* femora with pale pile, thicker below, front and middle tibiæ, except their tips and the hind tibiæ, more broadly reddish yellow, with bristles of same color, claws black pulvilli tawny Wings nearly uniformly blackish, veins yellowish at base, in some specimens the veins are wholly yellow in basal half all the posterior and the anal cell open

Type —University of Kansas Four male and one female specimens

Habitat —Washington (type), Seattle, Wash, (May 1), California (Hy Edwards), San Gabriel, Los Angeles Co , Cal (June)

Dioctria parvula.

Dioctria parvulus Coquillett, Can Ent , XXV 80 1893

♂ —*Length* 4 *mm* —Wholly polished black base of wings as far as the fifth posterior cell yellowish white beyond this blackish All the posterior and anal cells open Pile of head light yellow, that on sides of face very sparse, extending to base of antennæ. First two segments of antennæ subequal in length; the third segment as long as the first two taken together; style one-sixth as long as the third segment thick, blunt. Pile of thorax rather abundant, that of abdomen very sparse, short, bright yellow.

Type.—U. S. N. M., Cat. No. 925. Two male specimens.

Habitat.—Los Angeles Co., Cal. (D. W. Coquillett).

Dioctria pusio.

Dioctria pusio Osten Sacken, West. Dipt., 288, 1877.

Dioctria pusio Williston, Trans. Am. Ent. Soc., XIII, 288, 1886.

"♀.—*Length* 4.2 *mm.*—Thorax and abdomen black; segments 3–5 of the latter dull reddish; legs yellowish-red; hind tibiæ dark brown, except the tip.

"Antennæ long, black, inserted on a small protuberance; third segment (without the style) as long as the first two taken together; the style not quite half as long as the segment with a small expansion at the base (somewhat like Meigen, tab. 19, fig. 20, only the style in comparison with the segment, is longer in *D. pusio*); face with a bloom, which is golden yellow above, silvery below; mystax of a few whitish hairs; front and occiput black; posterior orbits and two spots above the neck on the occiput silvery pruinose. Thorax black, polished; dorsum with three faintly indicated lines of microscopic pubescence; the lateral ones expanded into triangles anteriorly; pleuræ with several spots with a partly silvery, partly golden reflection. Knob of halteres lemon-yellow. Legs red, including the coxæ; hind tibiæ dark brown, except the tip, which is red and somewhat incrassate; first segment of hind tarsi large and stout. Abdomen black, polished, smooth; second segment with a greenish reflection; the three following segments are reddish, but with darker metallic reflections. Wings with a rather uniform, slight brownish tinge; anal cell open; veins brown, yellowish at base; venation normal."

Type.—M. C. Z. A single female in good condition.

Habitat.—Sonoma Co., Cal. (July 4, Osten Sacken); Colorado (S. W. Williston).

Dr. Williston says of the Colorado specimen, a male, that the coxæ are yellow, the tip of the hind tibiæ considerably incrassate, and the slender abdomen has the third and following segments broadly blue-black on the disk of each, the margins yellowish-red, the seventh almost wholly, the hypopygium entirely so. The four fore tarsi are also brownish, except the base.

Dioctria resplendens.

Dioctria resplendens Loew, Cent., X, 21, 1872.

♂.—*Length* 5.6 *mm.*—Everywhere, except the head, polished greenish-black, beautifully resplendent upon thorax and abdomen; mystax very dense, fulvous; wing black.

The greenish-black polished thorax and abdomen, the blackish hyaline wings narrowly white along the veins, the black proboscis, palpi and antennæ, the fulvous pile of mystax, front, basal segments of antennæ, occiput, thorax, abdomen,—all make this an easily recognizable species. The pile of the legs in many places is nearly white. The wings have most beautiful violaceous reflections and are rather broad for the genus. The mystax is more dense than that of the most of the species of *Dioctria*. This species resembles an *Echthodopa*, but the posterior femora being without bristles make it a *Dioctria*.

Type.—M. C. Z. A single male specimen. There is another specimen at the National Museum also from California, collected by C. A. Stearns.

Habitat.—California (H. Edwards).

Dioctria rubida.

Dioctria rubidus Coquillett, Can. Ent., XXV, 80, 1893.

♂.—*Length* 7 *mm.*—Thorax and scutellum polished black, quite thickly light pilose· abdomen polished, reddish-brown; segment 1, and sometimes segment 2 and a large portion of segments 3 and 4, black. Legs yellowish; coxæ, trochanters, apical three-fourths of tibiæ and all the tarsi black. Head black with light yellow pile. Face covered with a very short, brassy-yellow pubescence, and a little pile above on each side; above the center with a large fovea, below which is a large gibbosity bearing a rather dense mystax. Antennæ black; first segment one and one-fourth times as long as the second, the third segment slightly longer than the first two taken together, the style one-sixth as long as the third segment, very robust, blunt at tip. Halteres yellow. Abdominal pile very sparse, short, light yellow. Wings blackish; all the posterior and anal cells open.

Type.—U. S. N. M., Cat. No. 924. Three male specimens.

Habitat.—Los Angeles Co., Cal. (D. W. Coquillett).

This species is easily recognized by the polished reddish-yellow femora and middle tibiæ.

Dioctria sackeni.

Dioctria sackeni, Williston, Trans. Am. Ent. Soc., XI, 8, 1884.

"♂.—*Length* 7 *mm.*—Black; basal half of wings light yellow, distal half blackish; fore femora below, tip of middle and hind femora, four front tibiæ except their tips, and basal half of the hind tibiæ reddish-yellow.

"Face yellow above, silvery below mystax, pile of front, of antennæ and the beard white Antennæ black, rather acute at tip Dorsum of thorax densely covered with whitish-yellow bloom, the pile of nearly the same color, pleuræ polished black, with small patches of yellowish-white bloom Abdomen slender, wholly polished Legs black, the front femora on the under side, the tip of middle femora and more or less along the under side, the hind femora at tip, the four anterior tibiæ except the immediate tip and the hind tibiæ on rather more than the basal half, light reddish yellow, hind femora much thickened, more so comparatively than in *albius* Wings on the basal half light yellow, from the cross veins on blackish "

Type —University of Kansas Three male specimens

Habitat —Washington (type), Mt Hood, Ore, White Mts, N H (Osten Sacken and Geo Dimmock), North Mt, Pa (June 9, C W Johnson)

There are specimens of this species in the collections of the M C Z, Univ of Ks, National Museum, and that of Prof C W Johnson See note under *albius*

Dioctria vera n sp

♂ —*Length about 7 mm* —Very slender polished black species with very slender hind femora and unusually large metatarsi for an American species of this genus all the femora black above, reddish yellow below wing darkish hyaline

Polished black face brassy yellow, front polished, occiput thinly golden pruinose, the bloom being more dense along the orbits Bristles of mystax few, fine, confined to oral margin golden pile of basal segments of antennæ, frontal orbits, occiput and beard paler yellow Antennæ black first two segments slender cylindrical, first segment noticeably longer than the second third segment linear, much more slender than in *albius*, densely pubescent, somewhat as in *Ceraturgus cruciatus*, only the protuberance does not appear except under a strong lens, style nearly equaling in width the third segment and a trifle less than one quarter its length, rather obtuse, densely pubescent Thoracic dorsum with a rather thin golden pubescence which leaves a median geminate strip bare bristles along the sides very few, short golden, pleuræ polished black the pubescence light golden, arranged as follows,—a proportionately broad band extending over the anterior portion of the meso and sternopleuræ and reaching to the front coxæ, a narrow line extending from base of wing along the mesopleural groove and, then widening, turning back beneath the pteropleron, a very small patch just above and behind the middle coxæ and a longer patch between the halteres and coxæ Trichostical pile short, golden, as also is that upon the posterior margin of the scutellum Halteres yellowish. Abdomen very slender; with very sparse microscopic pile, which is longer but scarcely noticeable on the sides of segments 1 and 2. Coxæ reddish-yellow, white pruinose, the fore and middle pairs with whitish pile; femora black, the lower half wholly reddish-yellow; front and middle tibiæ reddish except narrowly on the inside where they are black; hind tibiæ slender, incrassate at tip, black, extreme base reddish; tarsi black; metatarsi unusually large. Pile of legs sparse, whitish; that on the under side of the hind femora and tibiæ quite dense, very short, pure white; bristles of tibiæ sparse. Claws black, narrowly reddish at base; pulvilli pale. Wings darkish hyaline; all the posterior and the anal cells open.

Type.—American Museum. A single male specimen.

Habitat.—Monterey Co., Cal. (July 2, 1896, W. M. Wheeler).

CYRTOPOGON.

Cyrtopogon Loew, Linnæa Ent., II, 516, 1847.
Euarmostus Walker, Dipt. Saund., 102, 1851.
Cyrtopogon Schiner, Fauna Austr., I, 133, 1862.
Cyrtopogon Osten Sacken, West. Dipt., 294, 1877; Cat., 1878, note 104.

Small to medium-sized species, usually quite pilose and with pruinose bands upon the abdomen. Head broader than high, in typical species the face in profile swollen or gibbose, and clothed with an abundance of pile; front tibiæ without a terminal claw-like spur; fourth posterior cell of wing open, the anal cell narrowly so. Antennæ three-jointed, the third segment with a distinct, rather stout style, less than one-half as long and under the compound microscope, plainly two-jointed, the basal segment being short and about one-sixth as long as the second. In *Lasoipogon*, it is the terminal segment of the style that is long and the basal one short. Thorax moderately well arched, usually very pilose, and with the ground color partially obscured by a pattern in grayish bloom; abdomen normally long and slender; legs normal, the pulvilli and empodia well developed; the marginal, posterior, and anal cell of the wing open.

The structural characteristics of the numerous species belonging to this genus will facilitate a subdivision of the genus when sufficient amounts of material is at hand to make it worth while. I have followed Osten Sacken's paper on *Cryto-*

pogon in Western Diptera very closely. I have found no difficulty in running his type material in his keys which I have used, enlarging only sufficiently to include new species, and in so doing have taken care not to impair their value.

As many of his species have never since been collected, and as I have found by actual comparison with type material that his descriptions are excellent, I have not hesitated to embody them direct, with credit, in the text. My reasons for so doing is that when a man has made a good description it seems a waste of time for another to redescribe for the sole purpose of appearing more original

The species, *cerrussatus*, *nebulo*, *varipennis* and *gibber*, especially the last three, are aberrant forms I have allowed them to remain in this genus for the time being, as I know of no better place for them, and it seems unwise to erect new genera for them at this time.

In one day Osten Sacken captured thirteen species at Webber Lake, Sierra Co., Cal., eleven of which were new,—which shows the abundance of the species of this genus in the West

SYNOPSIS OF SPECIES

EASTERN SPECIES *

1	Scutellum flat, with very few indistinct hairs	**lutatius.**
	Scutellum convex, with long, distinct, erect hairs (with short white pile in *alleni*)	2
2	Third segment of antennæ red, very pilose species	**marginalis.**
	Third segment of antennæ black	3
3	Tibiæ and tarsi altogether black or dark chestnut	4
	Tibiæ and tarsi more or less reddish or yellow	5
4	Scutellum with long black pile	**lyratus.**
	Scutellum with short white pile	**alleni.**
5	Tibiæ red, the tips only black, the male with two large black spots on the wings	**bimacula.**
	Tibiæ red at base only, the male without large black spots on the wings	**falto.**

---

* These species are reported more frequently from New England, New York and New Jersey, although specimens have been taken as far west as Minnesota, *marginalis* has been reported from Virginia, *bimacula* has been taken in Las Vegas Range, N M

SYNOPSIS OF SPECIES

WESTERN SPECIES*

1 Scutellum rather convex above, its posterior margin rounded, surface black, sometimes pruinose at base only, and beset with long pile, legs densely pilose, and rather stout (except in *princeps*, where they are more slender) 2

Scutellum more or less flattened above, surface densely grayish pruinose, legs moderately hairy, and not very stout (rather hairy in *rattus*) 4

2 Hind tibiæ more or less reddish in the middle (except in *præpes*) 3

All the tibiæ entirely black **princeps** ♂, **cretaceus** ♀, **longimanus** ♂ ♀, **rufotarsus** ♂ ♀

3 Front tarsi of the male ornamented with dense silvery pile, middle tarsi with brushes of black bristles **callipedilus** ♂ —, **cymbalista** ♂ ♀, **plausor** ♂ ♀, **præpes** ♂, ♀

Front tarsi and tibiæ not ornamented as above, although *pulcher* has white pile on the fore tarsi **montanus** ♂ ♀, **leucozonus** ♀, **aurifex** ♂ ♀, **dasyllis** ♂, **dasylloides** ♂, **pulcher** ♂

4 Abdomen black, with spots or cross-bands on the posterior margin of the segments 5

Abdomen gray, with black spots **rattus.**

5 Legs reddish (femora black in *dubius*) **profusus** ♂ ♀, **dubius** ♀

Legs black **evidens** ♂ ♀, **rejectus** ♂, **nugator** ♂ ♀, **nigricolor, postivus, sudator** ♂ ♀

Aberrant species **cerussatus** ♂ ♀, **gibber** ♀, **nebulo** ♀, **varipennis** ♂ ♀

1 Abdomen† with long, erect, yellow pile length 16–18 mm **dasyllis, dasylloides.**

Abdomen without such pile smaller species 2

2 Antennal style as long, or nearly as long, as the third segment 3

Antennal style much shorter than the third segment 4

3 First basal cell of wing without brown spots **nebulo.**

First basal cell of wing with two brown spots **varipennis.**

4 Third antennal segment red 20

Third antennal segment black 5

5 Hind tibiæ more or less red in the middle (black in *præpes*) 6

Hind tibiæ black 12

---

* Does not include *tibialis* Coq and *maculosis* Coq based on females only, near *plausor* and *rejectus* respectively

† Does not include *dubius*, *gibber*, *maculosis*, *nigricolor* or *tibialis*. all of which are not well known to me, and based only on single female specimens, except *tibialis*, based on three females

6. Male: front tarsi with a conspicuous dense fringe of silvery pile, last two segments of the middle tarsi with a brush of black bristles. Female: hind margins of the abdominal segments white on the sides only; sometimes very little so ....9.
Male: front and middle tarsi without such characters. Female: hind margins of the abdominal segments 2–5 altogether white ....7.

7. Scutellum convex, black; the brownish pollen at the base, if any, is hardly perceptible; densely pilose with long, erect pile; face in the middle with white pile........8.
Scutellum flat, covered with dense gray pollen; longer hairs along the edge only; face altogether with black hairs. **profusus.**

8. Trichostical pile black ....**montanus.**
Trichostical pile white........ ..**leucozonus.**

9. Scutellum polished black ....10.
Scutellum with gray pollen........ ..**plausor.**

10. Legs wholly black (see couplet 5)........ **præpes.**
Hind tibiæ more or less red in the middle........ . 11.

11. Abdomen with white pile on the sides ....**callipedilus.**
Abdomen with black pile on the sides from the very base. **cymbalista.**

12. Tarsi reddish, the anterior tarsi of the male slender, honey-yellow, and, together with the front tibiæ, clothed above with not dense white pile........ . . . **rufotarsus.**
Legs not as above .... 13.

13. Abdomen gray, with black polished spots .... **rattus.**
Abdomen black, with white cross-bands .... 14.

14. White cross-bands on the anterior margins of the abdominal segments .... **cerussatus.**
White cross-bands on the posterior margins of the abdominal segments .... .15.

15. Scutellum polished black; legs very hairy........ ..**longimannus.**
Scutellum with gray pollen; legs moderately hairy .... 16.

16. Trichostical pile white. .... .17.
Trichostical pile black ....19.

17. First abdominal segment with a white cross-band occupying nearly the entire posterior margin........ ..**evidens.**
First abdominal segment with white spots on the sides only...18.

18. Wings brownish hyaline on the distal half; claws black, reddish at base only; length 9–10 mm . . ..**rejectus.**
Wings almost uniformly hyaline, claws yellowish white, black at the ends only; length 7–8 mm . . ... . **nugator.**

19 Front and face broad, with a hoary bloom **sudator.**
Front and face rather narrow, bloom upon them not hoary. **positivus.**
20 Tibiæ, except the tip, red 21
Tibiæ black 22
21 Abdomen with a brush of black hair extending over the last three segments, pile along remaining segments arranged in tufts **aurifex.**
Abdomen without such a brush, segments 1–2 with pale yellow pile not arranged in tufts **pulcher.**
22 Scutellum polished black 23
Scutellum with gray pollen **cretaceus.**
23 Hairs on face mixed with some white, compare (*longimanus*)
Hairs on face yellowish, front tarsi of the male unusually long, front and hind tarsi with silvery hairs on the upper side **princeps.**

EASTERN SPECIES

Cyrtopogon alleni n sp

♀ —*Length about* 14 *mm* —Very close to *lyratus*, but larger and more robust, and the pile of the posterior portion of the thoracic dorsum and the scutellum is white, and the pleuræ are wholly and densely white pruinose Pattern of thoracic dorsum distinct in a yellowish brown bloom, legs dark chestnut, wings distinctly clouded along some of the veins

Polished black, face, except middle of gibbosity, frontal orbits and occiput, white pruinose pile of face nowhere as dense or long, nor wholly black as in *lyratus*, but with many white hairs on the sides of the gently rounded gibbosity Antennæ black, segment 3 more suddenly coarctate near the middle than in *lyratus* Pile of basal segments of antennæ, front and upper occiput black, of the lower occiput, pronotum, meso and sternopleura, before the halteres, on the posterior portion of the dorsum and thinly on the scutellum white Pronotum, *entire* pleuræ, spots on posterior callosities, lateral margins of the first abdominal segment and the posterior lateral margins of the abdominal segments 2–5 white pruinose Bloom of pleuræ is dense, which is not the case in *lyratus* specimens that I have seen, in these the bloom is confined to a stripe along the lower part of the pleuræ Thoracic dorsum almost bare, with fine short black pile as far back as the posterior callosities, from thence to and including the scutellum with white pile, not very distinct, but not present in *lyratus* The scutellum of *lyratus* has long black pile, of *alleni*, short white pile The markings of the dorsum are distinct in a yellowish-brown bloom, as follows —A broad pruinose stripe on each side extending from the posterior callosities forward above the dorso-pleural suture and extending upward slightly at the transverse suture, to, but not including, the humeri; from thence extending upward to near the center of the dorsum and thence straight back to an imaginary line drawn between the posterior callosities, thus leaving the space usually occupied by the median geminate stripe as a clear black undivided stripe. The humeri are pruinose in certain lights, but more whitish. Abdomen polished black, with bluish reflections; otherwise as above Legs wholly dark chestnut; tarsi a trifle lighter. Pile of coxæ white, of femora very fine, entirely white, with no black bristles; tibiæ and tarsi almost entirely with black pile and bristles. Wings hyaline, but distinctly clouded on the distal portion of the costal cell, proximal portion of marginal cell, along the anterior cross-vein and all the veins closing the discal cell before, above, and behind, and at the furcation of the third longitudinal vein.

Type.—Single female, in the collection of Prof. C. W. Johnson, Curator of the Boston Natural History Society.

Habitat.—Mt. Kearsarge, N. H.; collected September 13, 1903, by Dr. G. M. Allen, in honor of whom I have named this species.

Cyrtopogon bimacula.

Euarmostus bimacula Walker, Dipt. Saund., Pt. II, 102, Pl. IV, fig. I, 1851 .

Cyrtopogon melanopleurus Loew, Cent., VII, 61, 1866 (female)

Cyrtopogon bimacula Loew, Berl. Ent. Zeit , 1874, 365, syn.

♂ ♀.—*Length* 9–11 *mm.*—♂.—Black; front and face densely yellowish-brown pruinose; abdomen polished blue-black, segments 2–5 white pruinose on the posterior lateral margins; wings with two large brown spots.

Face and front densely yellowish-brown pruinose, occiput grayish pruinose; pile of face dense, pale yellow on the middle of the gibbosity and reaching nearly to the antennæ; black on the outer side, on the oral margin and just beneath the antennæ. The latter black, first two segments black-haired. Front and upper occiput with fine erect black pile, which, on the ocellar tubercle, is longer and forms a distinct tuft; lower occiput, base of proboscis, sides of prothorax and all the coxæ with fine white pile. Thoracic dorsum yellowish-gray pruinose except the humeri, along the dorso-pleural suture narrowly, more broadly over the base of the wings, the posterior callosities, two spots adjoining the scutellum in front and the scutellum, except the extreme base, which are polished black. The brown geminate stripe is distinct, but not clearly defined and is abbreviated posteriorly. When viewed from before two small dark brown spots are visible about the humeri and two much larger ones before the transverse suture and blending with the geminate stripe. The bloom between the scutellum and the abbreviated geminate stripe is more nearly white. Posterior angles of the humeri red. Dorsum everywhere with short, erect black pile with a few black bristles on the sides; scutellum with similar but longer pile. Pleuræ polished black, the mesopleura and a small area over the posterior coxæ yellowish-brown pruinose; trichostical hairs and a patch of pile on the mesopleura before the mesopleural groove black. Halteres pale yellow. Abdomen polished blue-black; posterior lateral margins of segments 2–5 white pruinose. Sides of all the segments with pale yellow, almost white, pile, which is long and tufted on the first three segments, but not as noticeable on the following segments. Hypopygium black. Femora wholly black; tibiæ and tarsi dark chestnut; the tibiæ and tarsal segments black distally. Pile of legs almost wholly black excepting numerous pale yellow hairs on the femora, especially below, and a dense array of short appressed golden ones on the inner side of the fore tibiæ and tarsi, and on the distal portion of the hind tibiæ and their first two tarsal segments. Wings hyaline, with two brown spots; one on the outer third of the wing, the other smaller, occupying the distal half of the anal cell and running over into the adjoining cells.

♀.—The female does not differ from the male except in the absence of the spots on the wings. The wings are not hyaline, however, but are more or less darkened on the outer half, and about the anterior cross-vein and the anal cell.

Type.—British Museum. There are at the M. C. Z. four males and four females, five of which are in the collection of Osten Sacken and three in that of Loew.

Habitat.—N. A. (Walker); White Mts., and Mt. Washington, N. H. (Osten Sacken): top of Las Vegas Range, N. M. (June 28); Lower Minn.

Description made from the M. C. Z. material. In the collection of the Am. Ent. Soc. of Phila. there are four male and two female specimens from the top of the Las Vegas Range, N. M., which agree in every respect with the White Mountain specimens; an interesting case of geographical distribution.

Cyrtopogon falto.

Dasypogon falto Walker, List, II, 355, 1849.

Cyrtopogon chrysopogon Loew, Cent., VII, 55,,1866.

Dasypogon falto Walker, Can. Ent. III, 142, 1871 (oc. in Nova Scotia).

Dasypogon falto Osten Sacken, Cat., 1878, 69 (is *falto* same as *chrysopogon?*).

Cyrtopogon chyrsopogon Howard, Insect Book, 1902, Pl. XIX, fig. 28.

♂ ♀ —*Length* 10–13 *mm.*—Black, antennæ of same color; bases of all the tibiæ and tarsal segments broadly yellow; mystax wholly golden in the male, in the female edged with black; segments 2–5 of abdomen with white pruinose spots; wings hyaline, toward posterior margin and apex grayish.

Black; face on the sides silvery, front brownish pruinose. Mystax covering gibbosity; in the male very dense, wholly light golden except on the oral margins, where it is black; in the female much thinner, in the center golden, on the outside black. Antennæ black; pile on segments 1 and 2, on the front and occiput black. Beard white. Thoracic dorsum yellowish-brown pruinose; the median geminate stripe and the dilated lateral ones unequally black and polished. When viewed from above there appear to be two rounded spots on each side of the geminate stripe; one just above and behind the humeri, the other before the transverse suture. The humeri, a broad stripe extending from them over the base of the wings to the scutellum, and the scutellum, aside from its base, polished black. Dorsum and scutellum black pilose. Pleuræ yellowish-gray pruinose with a bare polished spot in the center, the mesopleura with fine black pile, the sternopleura with pile; the trichostical pile whitish. Halteres whitish. Abdomen wholly black, polished, white pilose; that of the male toward the apex above and the hypopygium with black pile; the posterior lateral margins of the segments 2–5 white pruinose Legs black, polished, the basal half or third of the tibiæ and all the tarsal segments, except distally, yellowish; pile of the femora white except at the tip, where, together with the bristles of the femora and the entire clothing of the tibiæ and tarsi, it is black. The front tarsi in the male are more slender than those of the female; the last four segments on their inner sides with pure white cilia. Wings hyaline, toward the posterior margin and toward the apex grayish; veins black, at very base, yellowish; the transverse veins slightly margined with fuscous.

Type.—British Museum. There are at the M. C. Z. one male and one female in Loew's collection; one bearing the label "? Falto Wlk." in Loew's handwriting. There are also four specimens in Osten Sacken's collection.

Habitat.—Nova Scotia (type, Wlk.), Quebec (Wulp), Montreal Isl. (June 10, Chagnon), Canada; Franconia and White Mts., N. H.; Mass. (June 1, 6 and 25), Axton, N. Y. (M. and H.); N. J. (Smith Cat.); Fla. (C. W. Johnson); Ill. (Osten Sacken).

A fairly common species found in nearly all insect collections.

Cyrtopogon lutatius.

Dasypogon lutatius Walker, List, II, 357, 1849.

Dasypogon lutatius Walker, Can. Ent., III, 142, 1871 (oc. in Nova Scotia).

Cyrtopogon lututius Osten Sacken, Cat., 1878, 281.

♀.—*Length* 7.5–10 *mm.*—Legs black, bristles of the tibiæ whitish; mystax white; abdominal segments, except the first, with interrupted white pruinose cross-bands near the posterior margin; wings hyaline.

Front and face grayish pruinose, mystax white extending up to the antennæ; antennæ black. Thoracic dorsum brown pruinose, with the usual stripes; the humeral callosities and the sides of the dorsum are covered with a more yellowish-gray bloom, which sometimes also extends more or less distinctly to the intervals between the dorsal stripes and the median line of the geminate stripe; a rather distinct, grayish-white spot on each side of the median geminate stripe, where the transverse suture reaches it; scutellum rather flat, rugose, with but little hair; grayish pruinose in the middle, black on the sides; pleuræ grayish pruinose; a polished black spot under the root of the wings; the trichostical pile is a mixture of white and black. Halteres yellow. Abdomen of very nearly equal breadth (the seventh segment distinctly narrowed), convex, black, subpolished, first segment with whitish pruinose spots on the sides; segments 2–7 with white pruinose cross-bands posteriorly; interrupted on segments 2–5, subinterrupted, nearly entire on segments 6–7; they touch the hind margin of the segments on the sides, but diverge from it a little on the tergum above. The sides of the abdomen at the base are clothed with white hairs; the tergum with microscopic pile, which in a certain light, appears golden-yellow. Legs black, tarsi more or less dark chestnut-brown; femora with white hairs, tibiæ with white bristles on the under side. Wings hyaline; a grayish tinge on the distal half is hardly perceptible, venation normal.

Type.—British Museum. There are seven female specimens at the M. C. Z. named by Osten Sacken.

Habitat.—Nova Scotia (Walker); Brookline (C. W. Johnson), and Chicopee (F. Knabb), Mass; Cayuga L., and Pike, N. Y.

Prof. C. W. Johnson has captured several specimens in Brookline, Mass., where it seems to be not at all rare. One of his specimens had the pruinose band on the fifth abdominal segment entire. It is not uncommon ahout Amherst, Mass.

Cyrtopogon lyratus.

Cyrtopogon lyratus Osten Sacken, Cat., 1878, 232.

♂ ♀.—*Length* 13–14 *mm.*—Head black, densely grayish pruinose on the face, slightly so on the sides of the front; mystax altogether black, hairs on the occiput black above, white below; antennæ black, third segment but little longer than the two preceding taken together. The usual thoracic stripes are dark brown, the white or yellowish bloom in their intervals forms the following pattern: a median line, attenuated posteriorly; a figure in the shape of a tuning-fork, having the end of the handle in front of the scutellum, connected with the end of the median line; a broad stripe on each side between the humeral and the posterior callosities, attenuated and abbreviated before reaching the latter; these lateral stripes are twice connected by pruinose cross-bands with the branches of the tuning-fork, the second time, along the transverse suture. Scutellum black, with black pile; grayish pruinose anteriorly. Pleuræ grayish pruinose, with a stripe of more dense silvery-gray bloom on the lower part; the trichostical hairs black. Abdomen black, polished, with a bluish reflection on the first five segments; each of these, and often the sixth, has a large white pruinose spot on each posterior lateral margin; the sides of the abdomen are clothed with white hairs, which become gradually shorter posteriorly and do not reach beyond the fifth segment; hypopygium black, with black pile. Legs black; bristles on the tibiæ black; femora with long white hairs on the under side; the hind pair also on the upper side near the base. Halteres reddish-yellow. Wings hyaline on their proximal half, including the discal cell; the distal half has a slight grayish tinge; cross-veins clouded with brown.

Type.—M. C. Z. Two female co-types.

Habitat.—Catskill Mountain House (type; July), N. Y.; White Mts. and Mt. Washington (C. W. Johnson), N. H.

The above description is Osten Sacken's, altered somewhat so as to include the male, of which I have seen a single specimen, belonging to Prof. C. W. Johnson. "The altogether black legs; the strong contrast between the brown thoracic stripes and the whitish pruinose intervals between them; the altogether black beard, etc., will help to distinguish this species."—Osten Sacken.

A female specimen from Mt. Ranier, Wash., in the collection of the University of Kansas is very close to *lyriatus* and *alleni*, more so to the former, but differs in that the pile of the face is white in the middle; the hind tibiæ are reddish at base; the pleuræ more densely pruinose above; the thoracic dorsum is black with a distinct figure in the grayish bloom which resembles Osten Sacken's tuning-fork, but the handle is very broad where it touches the scutellum, and there is, between the two prongs, a short line of bloom that extends in between the black geminate stripe.

Cyrtopogon marginalis.

Cyrtopogon marginalis Loew, Cent., VII, 60, 1866.

Cyrtopogon marginalis Loew, Berl. Ent. Zeit., 1874, 365, note.

♂ ♀.—*Length* 10–12 *mm.*—Black; antennæ, except at base and tip, reddish-yellow; apex of the femora, tibiæ and tarsi reddish; thoracic dorsum brownish pruinose, broadly polished black above the dorso-pleural suture; segments 2–5 of abdomen each with an interrupted white pruinose fascia; wing, excepting grayish tip, hyaline.

Black; face, front and occiput thinly grayish pruinose, the face more thickly so. First two segments of the antennæ black, apex of the second and third segment reddish-yellow, extreme apex of the latter and the style blackish. Pile on the middle of the face, first two antennal segments, ocellar tubercle and occiput below fine and white; that edging the mystax on the sides, on the oral margin, frontal orbits and upper occiput black. Dorsum grayish or brownish pruinose; the usual geminate and broader lateral stripes darker; subobsolete, while the shade of the bloom is always in sharp contrast with the rather broad polished black band that extends from, and including, the humeri backward above the dorso-pleural suture to the scutellum; pile on the polished area black; on rest of dorsum short and white. Pleuræ glayish-white pruinose with a bare polished area in the middle; pile of the mesopleura, sternopleura and before the halteres unusually long, furry, white. Scutellum polished black; white pilose. Abdomen polished black; segments 2–5 each with an interrupted white pruinose fascia on its posterior portion, not touching, however, the extreme posterior margin except on the sides. Posterior margins of the segments and the venter white pilose; rest of abdomen black pilose; the black pile of the male is much longer and more pronounced upon the sides, where, when viewed from before, it forms a distinct tuft upon segments 2–4. Femora black, reddish at base and tip, with long white pile, below rather yellowish; on the extreme apex black. Tibiæ reddish, darker toward the tip; black pilose on the inner, white pilose on the outer side. Tarsi likewise reddish, darker in the female, the first segment verging toward yellow; the front tarsi of the male more slender and wholly bright yellow, with pile and bristles of same color; bristles of the remaining tarsi and of the tibiæ black. Wings hyaline, veins yellow toward base, the marginal and first submarginal cells toward their apices and the second submarginal cell entire grayish.

Type.—M. C. Z. Five females and one male; one female of which only is probably the type. I have made one male and two female homotypes, which are deposited one each in the collection of the Massachusetts Agric. College, Am. Ent. Soc. of Phila. and in my own private collection, respectively.

Habitat.—Canada; White Mts., N. H.; Springfield, Mass.

(G. Dimmrock); New Haven, Conn. (May 15); Catskill Mts., N. Y.; N. J. (Smith Cat.); N. J. (E. Daecke, May 10); Va.

A female from Virginia has hyaline wings without any trace of grayish at the tip, thus agreeing with the Canadian female mentioned by Loew in Berl. Ent. Zeit. This is a very pilose species; the pile upon the prothorax, pleuræ and tibiæ being very long and fine.

Middle tarsi of male with brushes of black bristles.

Cyrtopogon callipedilus (Pl. VIII, fig. 1.)

Cyrtopogon callipedilus Loew, Berl. Ent. Zeit., 1874, 358.
Cyrtopogon callipedilus Osten Sacken, West. Dipt., 296, 1877.
Cyrtopogon callipedilus Williston, Trans. Am. Ent. Soc., XI, 12, 1884; oc. in Wyo.
Cyrtopogon callipedilus Coquillett, Psyche, IX, 149, 1902; oc. in N. M.

"♂ ♀.—*Length*, ♂ 11–12 *mm.*; ♀, 11–13 *mm.*—♂.—Black; thoracic dorsum with a very weak brownish bloom, forming an indistinct geminate stripe in the middle and some ill-defined marks on the sides; long white pile on the face, the lower part of the occiput, front part of the thorax, fore coxæ and the sides of the first two abdominal segments; black pile on the remainder of the abdomen and the top of the head; some scattered black hairs in the mystax above the mouth Femora black, with long, soft, white pile; tibiæ reddish, beset with blackish pile; tarsi black, except the first segment of the hind four tarsi, which is often reddish to a greater or less extent from the root; the front tarsi, beginning with the second segment, are densely beset on their upper side with recumbent, short, silvery hairs, parted in the middle; the under side of the same segment is densely beset on both sides with short black bristles; the last two segments of the middle tarsi have on each side a dense, flattened tuft of black bristles, which form together a kind of disk, which is a little broader than long. Wings grayish hyaline, more hyaline on the proximal half.

♀.—Head, and especially the face, covered with dense whitish-gray bloom, the thoracic dorsum covered with a brownish-gray bloom, completely concealing the black ground color, except at the four corners and on the scutellum, which is black, polished; a geminate darker line in the middle of the dorsum, not reaching the scutellum; pleuræ likewise clothed with a dense yellowish-gray bloom. Abdomen polished black, the hind margins of segments 2–5 with white triangles on each side. The hairs on head and thorax are like those of the male, but of a less pure white; the white hair on the sides of the abdomen reaches to its tip, gradually becoming shorter. Legs like those of the male, but the sexual ornaments on the front and middle tarsi are wanting. Wings with the grayish tinge a little more saturate than in the male."

Type.—M. C. Z. One male specimen in Loew's collection. There are, however, three males, three females, and a pair in coitu in Osten Sacken's collection. Osten Sacken states that his above description was made from eight males and seven females, but they are not all at the M. C. Z. Neither is the female type from which Loew made his detailed but unrecognizable description. There is one male homotype at the Massachusetts Agricultural College.

Habitat.—Yosemite Valley (June 5–12), Summit Station, Sierra Nevada (July 17), and Webber Lake, Sierra Co. (July 22–26), Cal.—Osten Sacken: Southern Wyo. (alt. 8,000 ft.); Hudsonian Zone, N. M.; Sisco, Cal. (alt. 6,000, from G. Franck).

A very pretty species. Easily and quickly recognized by the sharp contrast between the long fine white pile of the first and second abdominal segments and the black pile of the following segments, and by the parted silvery pile of the front tarsi and the broader than high brush of the middle tarsi. In the female too much stress cannot he laid upon the density of the thoracic bloom and the definitiveness of the two narrow dark stripes on the dorsum.

Cyrtopogon cymbalista.

Cyrtopogon cymbalista Osten Sacken, West. Dipt., 297, 1877.

♂ ♀.—*Length* 11–13 *mm*.—" ♂.—*Length* 11–12 *mm*.—Like *callipedilus* in the ornamentation of the four anterior tarsi and in the general coloring of the body, but with the following differences.—The abdomen is uniformly clothed with black pile. The white pile on the lower part of the occiput and on the thorax and front coxæ is less long and conspicuous. The black pile on the upper part of the occiput reaches much lower here. Only the four anterior femora have some white pile on their posterior side. The brownish bloom on the thorax is hardly perceptible here. The front tibiæ and the tips of the four hind tibiæ are black. Besides the silvery hair on segments 2–5 of the front tarsi, some silvery pile is also perceptible on the first segment. The under side of the same tarsal segment is not beset with dense brushes of short black bristles as it is in *callipedilus*, so that the white silvery hairs are visible from below, which they are not in the other species. The pulvilli of the four hind tarsi are brown, while in *callipedilus* they are whitish. The wings are a little shorter. The abdomen is slightly tapering from base to tip, instead of being nearly cylindrical, as in *callipedilus*. A vestige of a spot of whitish bloom is generally visible in the hind corner of the fourth segment.

♀.—*Length* 12–13 *mm.*—Black, polished; thoracic dorsum with a slight brownish bloom, which is a little denser than in the male, but much less dense than in the female of *callipedilus*. The hair on the face is deep black; a little whitish pile on the lower part of the occiput and on the front coxæ; pile on the legs black; their coloring the same as in the male, only the front tibiæ sometimes are reddish at the base and along their front side; abdomen with small triangles of whitish bloom on the posterior corners of segments 2–4, the largest on the fourth segment. The shape of the abdomen is different from that of the *callipedilus;* gradually tapering from base to tip, instead of slightly expanding about the middle."

Type.—M. C. Z. Type series consist of two male and three female specimens.

Habitat.—Summit Station, Sierra Nevada, July 17, and Webber Lake, July 23–24, Cal.; both sexes found in each locality.

Cyrtopogon plausor.

Cyrtopogon plausor Osten Sacken, West. Dipt.
Cyrtopogon plausor Williston, Tr. Am. Ent. Soc., XI, 12, 1884.
Cyrtopogon plausor Howard, Insect Book, 1902, Pl. XIX, fig. 26.
Cyrtopogon plausor Jones, Trans. Am. Ent. Soc., XXXIII, 277, 1907. (Note.)

" ♂ ♀.—*Length* 12–13 *mm.*—Very like *callipedilus* and *cymbalista* in the ornamentation of the four anterior tarsi of the male, and at the same time very different, even in those characters.

♂.—Pile on the face yellow, sometimes yellowish-white, black above the mouth; lower part of the head posteriorly and front part of the thorax with yellowish-white pile; thoracic dorsum, including even the base of the scutellum, covered with a yellowish-brown pollen, except at the four corners, which are black; three stripes on the dorsum are less pruinose and therefore darker; the intermediate one geminate, and abbreviated posteriorly; the lateral ones broad, abbreviated and rounded anteriorly, converging toward each other posteriorly, in front of the scutellum; abdomen black, polished, clothed on the sides with dense yellowish pile, gradually diminishing in length toward the tip. Legs black; tibiæ reddish, black at tip; front tibiæ often altogether black. Segments 2–5 of the front tibiæ densely beset with silvery white recumbent hairs along the outer and upper side only, and therefore not parted in the middle; in *callipedilus* and *cymbalista* the silvery hairs are found both on the outer and inner side of the upper part of the tarsi, and are parted in the middle; some silvery pile on the outside of the first segment; the last two segments of the tarsi with a disk-shaped, flat brush of black bristles, as in *callipedilus* and *cymbalista;* pulvilli blackish-brown; all the femora and the four posterior tibiæ beset with long pale yellowish pile. Wings grayish hyaline.

♀.—Like the male, except in the sexual ornamentation of the front and middle tarsi, etc. Abdomen black, polished, the sides densely beset with pale yellowish-white pile, through which, on segments 2–5, the white pruinose spots in the hind corners of the segments are visible. Will be easily distinguished from *C. callipedilus* female by its pruinose scutellum, less densely pruinose thoracic dorsum, more yellowish pile of the face and thorax, etc."

Type.—M. C. Z. Four male and two female specimens.

Habitat.—Morino Valley, N. M. (July 1); Spanish Peakes, Col. (June); Sioux Co., Nebr.; Cache Valley, Utah; divide between Idaho and Montana.

I have referred a male specimen from Gallatin Valley, Mont. (July 6, R. A. Cooley), to this species.

Cyrtopogon præpes.

Cyrtopogon præpes Williston, Tr. Am. Ent. Soc., XI, 12, 1884.

"♂ ♀.—*Length* 11-12 *mm.*—Scutellum convex above, pilose; legs densely pilose, wholly black; front tarsi of the male with a single row of silvery pile from the very base, and the terminal segments of the middle tarsi with a disk of black pile, longer than broad; sides of the abdomen at base white pilose, shorter and black on distal portion.

Black, polished. Face thickly yellowish pruinose, but concealed beneath the dense light yellow mystax, black on the oral margin. Beard, anterior and middle coxæ, first two segments of the abdomen on the sides, and all the femora below, and on the posterior part, thickly, nearly white pilose; front, upper part of the occiput, basal segments of the antennæ, dorsum and scutellum, tergum and sides from the second segment, upper surface of femora and all the tibiæ black pilose. Dorsum with two large spots on each side of the middle in front, brownish pruinose; pleuræ thickly light pruinose. Legs wholly deep black, the posterior tibiæ at tip and their metatarsi with golden-red pubescence. Legs not very stout nor the bristles very strong; front tarsi slender, on their upper side for their whole length with a row of short, dense, silvery pile, not parted, except at the tip, the surface below is smooth, but along the sides there is a fringe of very short black bristles; last two segments of middle tarsi with the disk of black pile narrower than in the other species, longer than broad. Wings nearly hyaline.

♀.—Like the male, but the face is a little more bare upon the sides, the pile throughout somewhat shorter, the dorsum more grayish pruinose, in front leaving two slender median dark stripes, the light pile of the abdomen is less abundant and extends on the sides to the fourth segment, and the black pile very short; the posterior angles of segments 2–4 white pruinose; the pile of the femora is more obscure, the silvery pile of the anterior, and the black disk of the middle tarsi wanting."

Type.—University of Kansas. "Two males and two females." One of the male co-types marked "type" is at the M. C. Z. and is in poor condition.

Middle tarsi of male without brushes of black bristles.*

Cyrtopogon aurifex.

Cyrtopogon aurifex Osten Sacken, West. Dipt., 301, 1877.

♂ ♀.—*Length* ♂, 8.2 *mm.;* ♀, 9–10 *mm.*—"♂.—Abdomen narrow tapering, black, polished, with some bluish reflections on the first segment and very distinct purplish toward the tip before the hypopygium; first segment on the sides with tufts of black pile anteriorly and white pile posteriorly; the hind part of the second and the greatest part of the third and fourth segments are occupied each by a conspicuous broad fringe of long, erect, yellowish-fulvous fur, with narrow base spaces between these fringes. The three following segments are covered with short, dense, erect, deep black hairs, forming a brush, especially conspicuous on the sides, and longer posteriorly before the hypopygium; the purplish-black, polished ground color is almost covered up by this pile; hypopygium black, polished, with but little pile Face and front with brownish-gray bloom; face with whitish pile above and black pile below; occiput with white pile below and black pile above and on the vertex; third antennal segment red; the style black. Thorax black, brownish pruinose, especially about the humeri; a brown geminate stripe, with a paler, grayish-yellow dividing line in the middle Femora black; front tibiæ red at base, black on their distal half; the other tibiæ red, broadly black at tip; tarsi black, the base of the first segment and the extreme root of the following segments red; first three segments of the front tarsi with some white pile on the upper side. Wings brownish hyaline; fourth posterior cell hardly coarctate.

"♀.—Legs like those of the male; only the red on the tarsi occupies more space and the front tarsi have no silvery pile; the hairs on the face are more scarce and whitish; the abdomen comparatively narrow, polished black; segments 2–5 each with a moderately broad cross-band of yellowish-white bloom near the posterior margin; segments 2–4 are

---

* Under this come several species, the males of which have never been taken.

sparsely clothed with yellowish-fulvous erect pile, not concealing at all the ground color, and not forming the fringes of fur so conspicuous in the male; segments 5–7 are almost glabrous, some very scarce, short pile only being perceptible. The thorax is more densely pruinose than in the male; the grayish bloom forms a V-shaped figure posteriorly, the apex of which rests on the scutellum, the ends branch off on each side along the thoracic suture; the geminate stripe is longitudinally divided by a more yellowish line; the usual brownish shadows in the humeral region."

Type.—M. C. Z. A single male and female.

Habitat.—Webber Lake, Sierra Nevada, Cal. (Osten Sacken, July 22, 1876).

The male is easily recognized from all other species by the white tuft of pile on the posterior lateral margins of the first abdominal segment, and the larger tufts of yellow pile on segments 2–4 which are very distinct and unique when viewed from above. The short pile on the terminal segments which forms a brush is another characteristic which goes to make this one of the prettiest Cyrtopogons. The female has a similar red third antennal segment, but the tufts of pile on the abdomen are reduced in amount so that they are not at all prominent; in fact, cannot really be called tufts in the sense that they are in the male. Pruinose bands, similar to those in the female, are found in the male, but are not conspicuous because of the tufts of yellow pile. In the female the pruinose bands are most prominent; in the male, the tufts.

Cyrtopogon princeps.

Cyrtopogon princeps Osten Sacken, West Dipt., 302, 1877.

"♂.—*Length* 10.5 *mm*.—Front tarsi remarkably long, once and three-quarters the length of the tibiæ, their whole upper side beset with a dense fringe of silvery pile; hind femora, tibiæ and tarsi on the upper side with a similar, but broader, covering of silvery pile. Face and front with a brownish-yellow bloom; mystax pale yellow, black only above the mouth and on the lower part of the face; lower part of the occiput with white, upper part and vertex with black pile; third antennal segment red, rather long and slender, the style black. Thorax black, somewhat polished posteriorly, and somewhat brownish-pruinose, especially about the humeri; scutellum black; thoracic pile black. Abdomen black, polished, with black pile, segments 2–6 with a yellowish-gray bloom on the hind margins; on the second segment, this pollen is visible on the sides only; on the third and fourth, it forms an interrupted cross-band; on the two following segments, this cross-band is broader and only subinterrupted by a deep emargination; the sixth segment is entirely covered with gray pollen, except a small black triangle in front; hypopygium black, with black pile, and only a small fringe of minute yellowish hairs at the extreme end. Legs black, ornamented as described above; claws whitish, with black tips. Wings uniformly blackish; veins normal; fourth posterior cell hardly coarctate at all."

Type.—M. C. Z. A single male specimen.

Habitat.—Webber Lake, Sierra Nevada, Cal. (Osten Sacken).

A pretty species, easily recognized by the long, slender, silvery piled front tibiæ and the similar silvery pile of the hind legs.

Cyrtopogon pulcher n sp.

♂ —*Length* 12–13 *mm.*—Black, all the tibiæ and tarsi, except their tips, yellowish-red; the front tibiæ on the outer side with fine silky white pile, very sparse and hardly perceptible at the base, but increasing in amount toward the tip; the front tarsi with similar pile much longer on the outside, where it is arranged in tufts corresponding to the tarsal segments. Third antennal segment reddish. Segments 2–5 of abdomen with white pruinose fasciæ; segments 1–2 on the sides with long yellowish pile, remaining segments nearly bare. Face, front and occiput, grayish pruinose; middle of gibbosity with golden pile; pile on rest of face, palpi, basal segments of antennæ, front, and upper occiput black, that of beard and proboscis white. Third segment of antennæ reddish, compressed, sublinear, not coarctate distally nor noticeably constricted proximally; style rather distinct, about one-fourth as long as the third segment tapering to a point. Thoracic dorsum polished black with a bloom ranging from nearly white to a dull olive and black; geminate stripe dull olive, distinct, divided by a fine white pruinose line; viewed from before, there appears two rounded dark spots on each side in front of the transverse suture incompletely surrounded by a nearly white bloom; this whitish bloom, closing the spot behind, crossing the suture, extends backward but does not reach the scutellum, as does the narrow pruinose line dividing the geminate stripe; thus leaving a limited area on the rear of the dorsum glistening black. Pleuræ and base of scutellum grayish-white pruinose; the posterior border of the latter polished black. Pile of and bristles of dorsum and long pile on the convex scutellum black; that of the pleuræ likewise black, but before the halteres yellow and black mixed. Halteres white. Abdomen polished black, segments 2–5 with white pruinose posterior cross-bands interrupted on segments 4–5; sides of segments 1–2 with rather long, pale yellow pile which, becoming shorter, extends up onto the tergum, being more noticeable on the tergum of segment 2, pile of remaining segments almost microscopic, yellowish on segment 3, black on the following and longer on the genitalia Venter on the proximal half with pale yellow pile Femora wholly black, the tibiæ, except their tips, and the tarsi, except last segment, yellowish-red, the anterior tarsi paler, pile of coxæ whiter, that of the femora pale yellow with a little black intermixed, bristles of tibiæ and tarsi quite numerous, black The anterior tibiæ on the outer side with fine white silky pile which toward the base is shorter and more sparse, but becoming longer and more noticeable toward the tip, anterior tarsi with similar white pile on the metatarsi, confined to the outer side, on the other segments on both sides, though most prominent on the outer side where it is longer, and, when viewed from certain positions, appears arranged in tufts corresponding to the segments There is a slight amount of white pile on the intermediate tarsi, but there is no ornamental brush of black hair Claws broadly yellowish at base Wings almost clear hyaline, venation normal, veins not clouded or spotted with black

Type—U S N M, Cat No A single male deposited for safe keeping by Prof C P Gillett of Colorado

Habitat—Palmer Lake, Col (July 10)

This species somewhat resembles *rufotarsus* in the ornamentation of the front tibiæ and tarsi, but in this species the white pile is confined chiefly to the outer side, while in *rufotarsus* it is on the upper side These two species are easily separated from those species like *callipedilus* and *præpes* by the absence of the brush on the intermediate tarsi, and by the nature and arrangement of the white pile on the anterior tibiæ and tarsi

Cyrtopogon rufotarsus n sp

♂ ♀ —*Length* 9 5 11 5 *mm*—Black, tarsi in both sexes reddish, the front pair of the male slender, clear honey yellow, and, together with the front tibiæ clothed above with not dense short white pile Pile of body and legs for most part black, on the abdomen wholly so, segments 2 5 of the female abdomen and segments 2–6 of the male, with interrupted white pruinose bands Body wholly black, a typical *Cyrtopogon*, face and front densely white pruinose, occiput somewhat so, anterior portion of thoracic dorsum grayish white pruinose, especially on the humeri and on either side of the median stripe, which is narrowly bisected and more grayish Pile of entire body abundant, black, except a small patch on the upper portion of the facial gibbosity, a small amount in the beard, that on the anterior pairs of coxæ, and a trifle at the base of the anterior femora below, which is white Antennæ wholly black, third segment slender at base, swollen toward tip, the style thick, pointed at tip, not easily distinguished from the third segment Scutellum convex, with long black pile Halteres reddish-yellow Segments 2–6 of abdomen with posterior white pruinose cross-bands, interrupted in the middle Legs wholly black, tarsi deep reddish, the front pair slender, clear honey-yellow The fore tibiæ and tarsi above clothed with short white pile, which is more or less depressed, but neither obscuring the ground color nor parted as in *callipedilus* In fact, in looking at the fore tarsi without a lens, one notices the yellowish color of the tarsi fully as much as the white pile upon the segments Hind tarsi darker than the middle tarsi, and the terminal segment of each tarsus is darker, claws broadly yellowish at base, pulvilli pale The middle tarsi without the ornamental brush found in *callipedilus* All the bristles of the tibiæ and tarsi black, those on the fore tarsi scant and weaker, the tips of the hind tibiæ and the under side of their tarsi with golden pubescence Wings blackish hyaline darker on the anterior cross-vein, the separation of the second and third longitudinal and at the end of the costal vein venation normal

♀ —The female does not differ from the male, except it is naturally more robust and the pile of the entire body is black except on the anterior pairs of coxæ All the tarsi are similar in appearance, dark reddish, in one specimen the bases of tibiæ are reddish Abdomen less pilose, segments 2–5 with white pruinose posterior cross bands broadly interrupted Face and occipital orbits grayish, the front brownish pruinose, thoracic dorsum on anterior two thirds rather densely yellowish brown pruinose, grayish on the anterior margin, leaving a distinct geminate stripe well divided by a narrow pruinose stripe which extends backward clear to the scutellum, widening before reaching it The humeri and a large spot anterior to the transverse suture subshining, distinct, dorsum on posterior third nearly devoid of bloom Scutellum thinly, the pleuræ more densely, grayish pruinose The stripes and spots of dorsum are best seen from before Wings as in male, only darker from the anterior cross vein to the end of the costal vein

Type —Described from two male and three female specimens, one male and one female co-type deposited in the collection of the Massachusetts Agricultural College, and one male and two female co-types in that of the Montana Agricultural College

Habitat —All from Gallatin Co , Mont , elev 8,000–9,400 feet, (July 9–11, E Kock)

Cyrtopogon dasyllis (Pl. IX, fig. 7.)

Cyrtopogon dasyllis Williston, Kans. Univ. Quart., II, 66, 1893.

"♂.—*Length* 16–18 *mm*—Black, thickly pilose; pile of face wholly black. Abdomen, except the tip, with long, dense, erect, yellow pile. Tarsi red. Wings hyaline; just before the tip a large, deep brown spot. Face and front with long and dense deep black pile; beard black. First two segments of the antennæ black, the third red; style short and thick. Thorax black, thickly black pilose; dorsum deep opaque brown, on the sides narrowly, and behind polished. Scutellum thickly black pilose, subpolished, convex. Abdomen nearly parallel on the sides, polished, but its shape and color largely concealed by the long, erect, yellow pile, the first segment sparingly black pilose on the sides; the last three segments and the hypopygium with abundant black pile. Legs black, black pilose, the coxæ with some whitish pile; the tarsi red, the hind tibiæ more deeply so. Wings hyaline, with a large black or deep brown spot before the apex, extending across the wing; a narrow cloud along the last section of the fifth vein."

Type.—University of Kansas.

Habitat.—Colorado, top of Deer Mt. (August, F. H. Snow).

A male specimen marked "type," loaned me by Prof. F. H. Snow, agrees perfectly with the above description except that all the tibiæ are reddish. This species is strikingly like *dasylloides* but differs, according to Dr. Williston, in the color of the third antennal segment, the facial pile, and in the wing markings. Dr. Williston's species are both founded upon male specimens; *dasylloides* upon a single male. I have three female specimens which I cannot place with certainty either under *dasyllis* or *dasylloides*, and yet they are, beyond doubt, one or the other. Two of them, from Pike, N. Y. (N. Y. St. Mus.), and Sisco, Cal. (Massachusetts Agricultural College), respectively, are like *dasyllis* except that the antennæ are black, the facial pile and beard light golden, as in *dasylloides*, instead of black, and the wings do not have the distinct spot as found in *dasyllis*, but have more the coloration of those of *dasylloides*. The female of *dasyllis* would not be expected to have a distinct spot on the wing if we can draw any conclusions from the male and female wing of *bimacula*. The third female is from Colorado (Am. Ent. Soc.); it has the antennæ as in *dasyllis*, but the pile of the face, beard and abdomen is wholly light yellow, and the wing coloration is more nearly like that of *dasylloides* It is hardly safe, having seen so little material, to express the opinion that these two species may eventually be proved the same, yet such is my conviction.

Cyrtopogon dasylloides.

Cyrtopogon dasylloides Williston, Trans Am Ent Soc, XI, 11, 1884

"♂ —*Length* 17 *mm* —Black, thickly black pilose, mystax thick, light yellow, coxæ with white pile Abdomen, except the tip, with long, dense, furry, erect, light yellow pile, tarsi red, wings hyaline, the distal half in front blackish

"Face very thickly light yellow pilose, on the lowest portion somewhat black, beard white Style of antennæ short, thickened Pile of the front, occiput and of the first two segments of antennæ black Thorax thickly black pilose dorsum nearly opaque, on the sides of the middle in front a little brownish pruinose, bristles not strong Scutellum thickly pilose, not pollinose, convex Abdomen nearly parallel on the sides, polished, but its shape and color nearly concealed by the very long, erect, furry, yellow pile, the first segment with a very little black pile above on the sides, and the last segments and the hypopygium wholly thickly pilose Coxæ white pilose Legs black, densely black pilose, hind tibiæ deep red, all the tarsi lighter red, the front pair with white pile Wings hyaline, the outer half in front from the margin of the third vein blackish, a little lighter at the tip, and fading out behind"

Type —University of Kansas One male specimen

Habitat —Washington

The pile of the abdomen is evenly distributed and not at all arranged in tufts

Cyrtopogon longimanus.

Cyrtopogon longimanus Loew, Berl Ent Zeit, 1874, 360

Cyrtopogon longimanus Osten Sacken, West, Dipt, 303, 1877

♂ —*Length* 8–9 *mm* —Translation by Osten Sacken from Loew The ground color of the whole body is, without exception, polished black The front with long black pubescence with which are mixed some whitish hairs, or such which appear whitish toward the tip Antennæ black, the first two segments sparsely beset with black hairs, partly whitish toward their tips, the third segment very slender, strongly coarctate in the middle, terminal style slender, a little more than half as long as the segment The long mystax reaches up to the antennæ, and is composed in the middle of hairs which are whitish or black at their base only, the hairs on its outer side, all around, are exclusively black, so that, seen from the sides, the mystax seems to consist entirely of black hairs; the long pile on the occiput is white; in the vicinity of the vertex and on the greatest part of the posterior orbit it is black. The pruinose design on the thoracic dorsum resembles that of *C. marginalis.* It consists of three broad stripes covered with dense brown bloom; the lateral ones are considerably abbreviated anteriorly; the intermediate one, seen from the front side, appears entire; seen from the hind side, it appears bisected by a broad black line; the region in front of the lateral stripes is covered with a thin white bloom, of which there is also a trace in the intervals between the middle stripe and the lateral ones. These intervals do not show the polished surface of the broad lateral margin of the thoracic dorsum, which is entirely free from bloom; the inner end of the thoracic suture, on each side, shows a small spot of more dense whitish bloom. The thoracic dorsum is beset with long black pile, which is rather scarce, except on the polished black sides of the dorsum, where it is a little more dense. Among this black pile there is a shorter and more delicate white pubescence; it does not exist, however, on the polished black portions of the dorsum. The polished black scutellum is rather densely beset with long, exclusively black, pile. Pleuræ with a thin grayish bloom; their pubescence in front of the halteres and of the roots of the wings is altogether black; above the anterior coxæ the stronger hairs are black, the more delicate pile whitish. Segments 2–4 of the polished black abdomen have on the posterior margin a very broad cross-band of white bloom, which is even expanded in the middle; a similar cross-band on the fifth segment is less broad, and a little interrupted in the described specimen (perhaps in consequence of detrition). The pile on the abdomen is rather long, but becomes gradually shorter towards its end. On the first five segments it is chiefly white; however, the side of the first three segments (exclusive of their posterior corners) bear some black pile, which may show a trace of whitish reflection on the tips of the single hairs only. This black pile reaches down to the venter. From the sixth segment to the much developed hypopygium the pile on the abdomen is altogether black. Coxæ with whitish pile. The black legs do not show any trace of lighter color; they have the ordinary structure. The anterior tarsi are comparatively long, equaled only by those of *marginalis* and *montanus.* The hairs on the legs are long, chiefly whitish on the femora. At their tip, however, and on the upper and hind side of the anterior femora, the hairs are more or less exclusively black. On the under side of all the femora, especially toward their base, the hairs have a pale yellowish tinge. The pubescence of the anterior tibiæ is chiefly black; but on their distal half there is a good deal of white pile. On the posterior tibiæ, the hairs are prevailing white, although there are many black hairs near the base, on the under side more than on the upper side. The hairs on the tarsi are chiefly white, on the upper side the first three segments of the posterior tarsi comparatively long, otherwise short, all the bristles on the legs are black Halteres blackish-brown Proximal half of wings hyaline, distal half blackish-gray; venation normal, veins black

Type.—M. C Z.

Habitat.—San Francisco, Cal. (H. Edwards).

Osten Sacken states that he has three males 4–10 mm. long, from San Rafael, Marin Co., Cal., May 31, which agree perfectly with Loew's description except that the grayish pruinose cross-bands on segments 2–4 have a distinct black emargination in the middle, which Loew does not mention The third antennal segment is sometimes reddish; the antennal style is long though, longer than half of the third segment. The thorax of Osten Sacken's specimens show, on each side of the median stripe, anteriorly, a short streak of whitish bloom.

Osten Sacken gives the following description of three females taken on the same day with the males, and a fourth taken at the end of April in Sonoma County.

"♀ —The cross-bands of whitish bloom on segments 2–4 are nearly parallel, slightly narrower in the middle, especially on the fourth segment, where they are more expanded on the sides, on the fifth segment, the cross-band is interrupted in the middle The pile on the sides of the abdomen is white, with the exception of a tuft at the base of the first segment on the sides and of a smaller one on the sides of the second segment The prevailing pubescence on the tarsi is black, the white hairs on the posterior tarsi, which are conspicuous in the males, are wanting here The brownish on the distal part of the wings is much less distinct than in the male, hardly perceptible The antennæ of one of the specimens are somewhat reddish toward the end. *Length* 10–12 *mm* "

There is one male and one female at the Massachusetts Agricultural College from Vernon, B. C , captured in May 14–22, which agree with the above description.

Cyrtopogon montanus.

Cyrtopogon montanus Loew, Berl Ent Zeit , 1874, 362

Cyrtopogon montanus Osten Sacken, West Dipt , 298, 1877

♂ ♀ —*Length* 8–11 *mm* —Deep black, hind tibiæ, except at base and tip, and the tarsi, in varying degree, reddish, pile chiefly black, segments 2–5 of abdomen each with a posterior white pruinose fascia, wings grayish hyaline.

♂.—Deep black, hind tibiæ dark reddish, brownish-black at base and tip; all the tarsi dark reddish, the fore pair moderately slender.

Face, front and occiput grayish pruinose, mystax dense, extending up to antennæ, whitish in the center and above, black on the sides and oral margin Antennæ black, third segment longer than the first two taken together constricted toward base, more swollen distally, style bristle-like, about one-third the length of the third segment Pile of palpi, front, upper occiput, dorsum, the long pile of the convex scutellum and on the pleuræ wholly black, that of the basal segments of the antennæ largely lower occiput, proboscis and coxæ white Thoracic dorsum with a thin brownish bloom, which conceals but very little the black polished ground color, the median geminate stripe is hardly perceptible, but on each side of it a semblance of a figure 5 in gray bloom, with its reverse on the outer side, is more distinct Pleuræ grayish pruinose, scutellum brownish pruinose at base only, polished on the outer margin Halteres yellowish white Abdomen polished black segments 2–5 each with a moderately broad cross band of white bloom apparently entire on segments 2–4, but interrupted on segment 5, pile of abdomen wholly black except on sides of first segment, where there is often some white pile, longest on sides of segments 1–2, but gradually decreasing in length from thence to tip Pile of femora is largely, though not altogether, black some whitish hairs on the under side of the front femora at the base, and short white hairs on the greater part of the hind femora above are especially perceptible front tibiæ chiefly black pilose, but the hind tibiæ are clothed on the under side only with black hairs, elsewhere with white pile, which on the upper or posterior side is more prominent the pile of the tarsi and bristles of legs black Wings grayish hyaline, hardly more grayish at the distal half, venation normal the central cross vein with vestiges of darker shades which will probably not be visible in fresher specimens

♀ —Quite similar to male, but dorsum more densely and more brownish pruinose the double figure 5 on each side of the brown median stripe grayish pruinose Abdomen less pilose the white pruinose cross bands of segments 2–5 entire that on segment 5 sometimes interrupted side of all the segments with short fine white pile except at the base, where the pile is black Osten Sacken says that this black pile appears as "tufts," but I have not seen indications of such The trichostical pile is black and white mixed Tarsi with only traces of reddish color almost black

Type —M C Z Loew's single male type is, as he says, in poor condition, somewhat greased The three male and five female specimens mentioned by Osten Sacken in "Western Diptera," are at the M C Z and in good condition

Habitat —Sierra Nevada (type), Col , Beulah, N M (H Skinner), Yosemite, and Webber Lake, Sierra Nevada (July 22, Osten Sacken), Vernon, B C (May 14, 22, Miss Ricardo)

Cyrtopogon leucozonus.

Cyrtopogon leucozonus Loew, Berl. Ent. Zeit., 1874, 364.

Cyrtopogon leucozonus Osten Sacken, West. Dipt., 299, 1877 (translation).

♀.—*Length* 8–9 *mm.*—Black; posterior tibiæ and their metatarsi reddish, with black and white pile, abdomen wholly white pilose, segments 2–5 each adorned with a posterior white pruinose fascia; wings grayish hyaline.

Deep black; hind tibiæ, and the middle ones in a much less degree, reddish, their extreme bases brown, their tips hardly darkened; hind metatarsi dark reddish, brownish toward tip. Face, front and occiput grayish-white pruinose. The dense mystax reaching to antennæ, black, white above. Antennæ black. Pile of front long, black; that of the palpi, upper occiput and a narrow fringe along the occipital orbits likewise black; that of the rest of the occiput and basal segments of antennæ, white. Dorsum whitish-gray pruinose near the humeri, elsewhere brownish-gray pruinose, the markings of dorsum very indistinct; pile chiefly white, but from the middle toward the anterior margin, the black hairs become gradually more numerous; usual thoracic bristles black. Pleuræ brownish-gray pruinose, pile wholly white; that on the mesopleura and before the halteres well developed. Scutellum everywhere thinly clothed with long black and white hairs mixed. Halteres whitish-yellow with brown stem. Abdomen polished black; segments 2–5 each with a moderately broad white pruinose cross-band, that on segment 5 interrupted; pile of abdomen wholly white, longer at base, shorter and more scarce toward the end. Pile of coxæ wholly white. Pile of femora prevailingly, but not exclusively, whitish; that of anterior femora toward tip mostly black on the upper and anterior side; on the posterior femora most of the black pile is at the end of their posterior side. Hairs of front and middle tibiæ mostly black, on the upper side of the latter numerous white hairs are mixed with the black; on the posterior tibiæ the under side is beset with long black hairs, while the rest of the pile is white, on the upper side rather dense and moderately long; pile of tarsi and bristles of legs black. Wings grayish hyaline, hardly more grayish on distal half; venation normal, veins blackish, the central cross-veins show in their immediate surroundings distinct traces of a darker shade, which are probably less distinct in very fresh specimens.

Type.—There are five females in Osten Sacken's collection at the M. C. Z. Whether one of these is Loew's type is hard to say.

Habitat.—Sierra Nevada (type), Webber Lake (July 22), and Yosemite Valley (June 8), Cal.; Beulah, N. M. (H. Skinner).

Loew was right in regarding this species not the female of *montanus*, for I have seen males and females of the latter from British Columbia, Canada. The females described by Osten Sacken as *montanus* agree with the B. C. females. The white pile of the thoracic dorsum is most prominent upon the posterior callosities and immediately before the scutellum, and is best seen from in front and a little to one side.

Cyrtopogon dubius.

Cyrtopogon dubius Williston, Trans. Am. Ent. Soc., XI, 13, 1884.

"♀.—*Length* 11 *mm*.—Scutellum flattened, gray pruinose above-abdomen polished black, first segment on the sides, and the four fol; lowing, with interrupted posterior cross-bands of gray bloom; femora black, tibiæ and tarsi dark red; head, except the beard, wholly black pilose, antennæ black; wings with narrow brown clouds on the cross-veins.

"Face thickly whitish pruinose and densely black pilose; beard below white; on the sides and above black. Dorsum of thorax deep blackish brown, with dense gray pruinose markings, as follows: A slender median stripe obsolete behind; a large spot in front of the scutellum, slenderly prolonged on its anterior angles to the middle of the dorsum, the humeri, a spot on their inner sides, another large one behind, concave on its inner border, and a smaller one on the postalar callosities. Pleuræ gray pruinose; the fan-like fringe of hairs in front of the halteres black. Abdomen with white pile on the sides in front; the last two segments wholly polished. Anterior and intermediate coxæ, and all the femora below towards the base with long soft white pile; anterior tibiæ on their inner sides and their metatarsi with golden pubescence posterior tibiæ at their tip and the tip of their metatarsi with white pubescence; femora black; tibiæ and tarsi red; the latter more brownish-red. Wings hyaline in the basal half, distinctly clouded with brownish on the distal half; the veins from the margin of the second longitudinal to the beginning of the posterior basal transverse narrowly but distinctly clouded with brown; the veins at the base of the second submarginal and the first and second posterior cells less distinctly clouded."

Type.—University of Kansas. One female specimen.

Habitat.—Mt. Hood, Oregon (type).

Cyrtopogon maculosis.

Cyrtopogon maculosis Coquillett, Proc. Ent Soc., Wash., VI, 184, 1904.

"♀.—*Length* 10 *mm*.—Near *rejectus*, but the wings distinctly spotted, thorax with a crest of hairs, etc. Black, including the halteres. Face strongly gibbose; mystax black, rather dense, mounting nearly to the antennæ; third joint of antennæ one and one-fourth times as long as the first two taken together, gradually tapering to apex, three times as long as the robust style; hairs of front and on upper edge of occiput chiefly black, on remainder of occiput whitish. Thorax with the usual brown markings, a median crest of rather long black hairs, bristles black and rather slender; mesopleura and sternopleura hairy, pteropleura bare, hairs of hypopleura whitish; scutellum strongly convex, yellowish-gray pruinose, rather densely covered with long white hairs and with a row of slender black bristles around the margin. Abdomen polished, the lateral margins narrowly gray pruinose, produced inward a short distance at the hind angles of each segment Hairs and bristles of legs chiefly whitish; tarsal claws black. Wings hyaline, a distinct brown cloud on veins and cross-veins near middle of discal cell."

Type.—U. S. N. M., Cat. No. 7958. A single female specimen.

Habitat.—Pullman, Wash. (April 29, 1902, Prof. C. V. Piper).

Cyrtopogon nigricolor.

Cyrtopogon nigricolor Coquillett, Proc. Ent. Soc. Wash., VI, 183, 1904.

" ♀.—*Length* 9 *mm.*—Near *rattus*, but the bristles of the tibiæ are black, the abdomen is largely polished, etc. Black; the halteres yellowish; the knees narrowly brownish-yellow. Hairs of the front whitish, on the vertex mixed with black; bristles of upper part of occiput black, hairs of the lower part white; mystax mixed white and black, mounting nearly to the antennæ; face strongly convex; first joint of antennæ slightly longer than the second, the latter with a pair of stout black bristles on the under side; third joint one and one-fourth times as long as the first two taken together, strongly constricted a short distance beyond the base and considerably narrowed at the apex, about three times as long as the slender style. Bristles of the body and on the tibiæ and tarsi, black. Brown stripes of mesonotum diffuse, the hairs sparse and rather short; mesopleura, pteropleura and sternopleura bare, hairs of hypopleura chiefly black; scutellum flat, yellowish-gray pruinose, almost bare, with six strong marginal bristles. Abdomen polished, sides of first segment, bases and hind angles of the three following ones gray pruinose (the remaining segments may also have had similar markings, but these do not now appear, possibly owing to the partial greasing of the specimen). Tarsal claws black. Wings hyaline, the apical half faintly tinged with yellowish; small cross-vein slightly beyond middle of discal cell."

Type.—U. S. N. M., Cat. No. 7956. A single female specimen.

Habitat.—Los Angeles Co., Cal. (June, D. W. Coquillett).

Cyrtopogon tibialis.

Cyrtopogon tibialis Coq., Proc. Ent. Soc. Wash., VI, 183, 1904.

"♀.—Length 9.5–11 *mm.*—Near *plausor*, but the mystax is black and rather sparse, not concealing the ground color, scutellum flat, etc. Black; the halteres yellow; the tibiæ, bases of tarsi and extreme apices of femora reddish-yellow. Hairs of front and on upper edge of occiput black, on remainder of occiput white; third joint of antennæ slightly longer than the first two joints taken together, greatly widening medially, two and one-third times as long as the rather slender arista; face strongly gibbous. Mesonotum gray pruinose, marked with a pair of submedian brown stripes not extending on the posterior portion, and on either side with a pair of large brown spots separated by the suture; hairs sparse and rather short, bristles black; mesopleura and sternopleura hairy; pteropleura bare; hairs of hypopleura whitish; scutellum gray pruinose on the upper surface, sparsely covered with long black hairs most abundant around the margin, devoid of stout bristles. Abdomen polished, with a bluish tinge on the first five segments, a gray pruinose fascia on hind part of the first six segments, that on the first and sixth broadly interrupted in the middle. Hairs of coxæ and femora white, bristles of tibiæ and tarsi black, tarsal claws whitish, their apical third black. Wings hyaline, small cross-vein near one-third length of discal cell."

Type.—U. S. N. M., Cat. No. 7957. Three female specimens.

Habitat.—Arizona (H. K. Morrison).

Cyrtopogon rattus.

Cyrtopogon rattus Osten Sacken, West. Dipt., 308, 1877.

♂ ♀.—*Length* 9 10 *mm* —Altogether covered with a yellowish-gray bloom; thorax with a geminate black line in the middle; abdominal segments on each side anteriorly with a polished black spot.

Face and front grayish pruinose, the former with a white mystax; the bristles above the mouth are black; ocellar tubercle and occiput beset with whitish hairs; a small tuft of black hairs on each side of the vertex near the upper corner of the eye. Thorax gray, with a black double line in the middle, abbreviated before reaching the scutellum; the lateral stripes are paler brown, ill defined and crossed transversely by the grayish pruinose thoracic suture. The pile on the thorax is whitish anteriorly, black posteriorly; bristles black. Scutellum gray, clothed with long, soft, whitish pile. The fan-like fringe of hairs in front of the halteres is white. Abdomen gray, clothed with soft, whitish pile; segments 2–6 on each side at the base with a large polished black spot, diminishing in size on each subsequent segment In the female these spots are much smaller. The seventh segment, in the female, is black, polished; the hypopygium of the male is also free of bloom, but beset with yellowish-white pile. Tips black, beset with long, white pile; bristles on the tibiæ also white, except the terminal ones and those on the front side of the front pair. Halteres with a lemon-yellow knob. Wings hyaline, veins black, normal.

Type.—M. C. Z. Five male and one female specimens in excellent condition.

Habitat.—Webber Lake, Sierra Co., Cal. (July 22, Osten Sacken).

The antennal style is comparatively shorter in all the preceding species (*positivus* and *sudator*), somewhat coalescent with the third segment; the bristles at tip are very distinct.

Cyrtopogon profusus.

Crytopogon profusus Osten Sacken, West. Dipt., 305, 1877.

Cyrtopogon profusus Williston, Trans. Amer. Ent. Soc., XI, 13 (locality reference).

"♂ ♀.—*Length*, ♂ 11–12 *mm.*, ♀ 12–13 *mm.*—Thorax, including its sides and corners and scutellum, densely clothed with gray pollen; three brown stripes on the dorsum; the intermediate one geminate, reaching from the anterior border to the scutellum (where it becomes almost black), longitudinally bisected by a gray line; the lateral stripes broad, abbreviated anteriorly and bisected transversely by a gray line along the thoracic suture; the two halves thus produced are about equal in size, the anterior one being nearly round; both are dark brown on their inner side; the hair on the dorsum is black; a fringe of black hairs along the edge of the scutellum. Abdomen black, polished; posterior margins of segments 1–5 with a moderately broad cross-band of white bloom, in the male the segments preceding the hypopygium are also whitish pruinose; the sides of the abdomen on the basal half have tufts of long, soft, white hair; the fan-like fringe of hairs on the pleuræ in front of the halteres is white. Hypopygium beset with some black pile. Face and front brownish-gray, beset with black pile; in the female I perceive some white hairs mixed with the black ones in the mystax. Antennæ black. Legs brownish-red; femora with black stripes along the upper side; they are beset with long, soft, white hairs; tibiæ with short, white pile and black bristles, a few of the bristles on the middle and hind tibiæ are pale yellow; tarsi reddish-brown, almost black on the upper side; claws whitish, with black tips; pulvilli whitish. Wings grayish hyaline; venation normal.

Type.—M. C. Z. One male and three female specimens.

Habitat.—Morino Valley, N. M.; Sangre de Cristo Mts., Col.; Kans. (F. H. Snow).

It is seldom that the geminate stripe extends from the anterior margin of the mesonotum to the base of the scutellum or so sharply defined as in this species.

Cyrtopogon cretaceus.

Cyrtopogon cretaceus Osten Sacken, West. Dipt., 302, 1877.

" ♀.—*Length* 10.5 *mm.*—Thoracic dorsum rather evenly clothed with a grayish-white bloom, completely concealing the ground color; the coloring of this bloom is rather uniform, a geminate median stripe is hardly perceptible; posterior callosities black, polished; scutellum black, brownish pruinose at the base; pleuræ with dense yellowish-gray bloom. Abdomen polished, black; segments 2–5 each with a moderately broad cross-band of yellowish-white bloom on the hind margins. Face and front densely covered with yellowish-gray pollen; mystax white above, black below above the mouth; vertex and upper part of the occiput with black pile; lower part with long white hair. Third antennal segment red or reddish, the style black. Thorax with fine black erect pile on the front part, and with whitish pile on the back part of the dorsum; the base of the scutellum with whitish pile, the remainder with long black pile. On the pleuræ the fan-like fringe of pile in front of the halteres is mixed of white and black hairs; the subhumeral callosities and the lower part of the pleuræ are beset with white hairs; but, in front of the root of the wings there is some black pile. The abdomen on the sides is beset with white pile; it is long and tuft-like at the base, but becomes rather rare beyond the third segment. Legs uniformly deep black, polished; they are much less stout than in *C. callipedilus* ♀; the tibiæ, especially the front pair, are more straight; front tarsi rather long, the pile and bristles on the four anterior legs are black, except some white pile on the under and hind side of the femora, the hind femora and tibiæ are beset with white pile, which is particularly dense on the upper side of the hind tibiæ; the bristles, as usual, are black; the first segment of the hind tarsi shows, in a reflected light, some short, white pile; otherwise the tarsi are uniformly black. Claws whitish, with black tips. Wings grayish hyaline; venation normal

Type.—M. C. Z. Two female co-types.

Habitat.—Webber Lake, Sierra Nevada, Cal. (Osten Sacken, July 22, 1876).

This species cannot be taken for any other *Cyrtopogon* now known to me because of the uniformly grayish-white and dense bloom on the face, front and dorsum, where it is very conspicuous. The geminate stripe and other markings are so nearly obsolete that they do not spoil to any degree the wholly grayish-white effect. "This species," says Osten Sacken, "like

C. princeps, has the claws whitish, with black tips; both species were found in the same locality; they are too different, however, to be taken, without further evidence, for the sexes of the same species. The other species of *Cyrtopogon*, described in this paper (Western Diptera), have the claws black and more or less brownish or reddish at the base only. *C. profusus* and *nugator* are the only species which, in this respect, resemble the two above-mentioned ones."

Cyrtopogon evidens.

Cyrtopogon evidens Osten Sacken, West. Dipt., 306, 1876.

♂ ♀.—*Length* ♂ 7–8 *mm.;* ♀ 10–11 *mm.*—First abdominal segment with an uninterrupted white cross-band on the posterior margin; stripes on the thorax very distinctly marked, brown; the longitudinal dividing line of the geminate stripe is very distinct; the portion of the lateral stripe anterior to the thoracic suture is large, conspicuous, of a rich dark brown; white cross-bands on abdominal segments entire, somewhat interrupted on the fifth segment only, rarely (in the male) on the fourth segment. In the male the brownish tinge of the distal half of the wing is more marked than in *C. rejectus, nugator, positivus*, or *sudator*.

Type.—M. C. Z. Three male and four female specimens.

Habitat.—Webber Lake, Sierra Nevada, Cal. (July 22–24, Osten Sacken).

The original description is short, but to the point. I will add the following. Face and front broad, wholly and densely grayish-white pruinose, as is also the occiput. Pile of face and front wholly black, and nowhere so dense as to obscure the dense bloom. Antennæ wholly black. Pleuræ and scutellum grayish pruinose. The two brownish stripes on dorsum and the whitish pruinose stripe separating them are *very distinct*, and together with the large spots anterior to the transverse suture, which are most prominent when viewed from above, and the markings of the abdomen make this an easily recognized species. Pile of thoracic dorsum short, erect, bristles black, as are those on scutellum. Legs wholly black; coxæ and under side of all the femora with silky white pile; tibiæ with long black bristles. Trichostical pile and that on side of segments 1 and 2 of abdomen fine and white.

Cyrtopogon rejectus.

Cyrtopogon rejectus Osten Sacken, West. Dipt., 307, 1877.

" ♀.—*Length* 9–10 *mm.*—First abdominal segment white pruinose on the sides only; the white cross-bands on segments 2–4 interrupted; on segment 5 the extreme sides only of the hind margin are white. Median geminate thoracic stripe less well marked and abbreviated earlier posteriorly; the portion of the lateral stripe anterior to the transverse suture is well marked, brown."

Type.—M. C. Z. Four female specimens.

Habitat.—Webber Lake, Sierra Co. (July 22–24), and Summit Station, Central Pacific Railroad (July 17), Cal., Osten Sacken.

Head wholly grayish pruinose, occiput and thorax wholly brownish-yellow pruinose; viewed from above, the scutellum, posterior callosities and the dorsum behind the abbreviated geminate stripe lighter pruinose. Abdomen as above described, almost bare; the white pile on the side of the segments not prominent, longest on segments 1 and 2. Trichostical pile white. Legs wholly black, clothed with black bristles and pile with the exception of some white pile on the femora below. Pile of dorsum and scutellum black. Wings hyaline on the proximal half, slightly tinged with grayish on the distal half.

Osten Sacken says that "*rejectus* alone is doubtful to me, and may possibly be only a variety of *evidens*."

Cyrtopogon nugator (Pl. X, fig. 6).

Cyrtopogon nugator Osten Sacken, West. Dipt., 307, 1877.

Cyrtopogon nugator Williston Tr. Am. Ent. Soc., XI, 13, 1884.

♂ ♀.—*Length* 7–8 *mm*.—"First abdominal segment white pruinose on the sides only; the white cross-bands on segments 2–5 very markedly interrupted; length of the interruption nearly equal on segments 2–4. The abdomen (♀) is narrower, more cylindrical and convex, of more equal breadth from the base than in the female of *evidens* and *rejectus*. Wings almost uniformly hyaline. Thoracic stripes very distinct, more blackish; the portion of the lateral ones preceding the suture is not conspicuously darker, and has not the rich dark brown color which distinguishes it from *evidens* and *rejectus*. Claws whitish-yellow, the tips black. In size, this species is smaller, the female being only 7–8 mm. long. I have a male specimen which seems to belong here on account of its size and hyaline wings; but the stripe on the second abdominal segment is *not* interrupted (the thorax of the specimen is greasy); the claws are whitish-yellow, with black tips, a very characteristic mark of the species."

Type.—M. C. Z. Four female, and one male specimens.

Habitat.—Webber Lake, Sierra Co., Cal. (Osten Sacken); Mt. Hood, Oregon (Williston).

I have the following notes upon the type material. Face, front, occiput, pleuræ, scutellum, grayish-white pruinose; pile of face, front and upper occiput fine, black, not dense, nor obscuring the bloom. Beard, pile of pleuræ, trichostical pile, and that of the sides of the segments 1 and 2 of abdomen white. Pile of thoracic dorsum short, erect; bristles black; scutellum with long weak bristles only on the posterior margin. Legs black; often tinged with chestnut; coxæ white pruinose; femora below with white pile; rest of the pile and bristles black.

Williston states that a male from Mt. Hood has the second and third abdominal pruinose cross-bands narrowed in the middle, but entire (thus removing the doubt from Osten Sacken's male). I have two females and two males from Cloudcroft, N. M., belonging to the Am. Ent. Soc. which I refer to this species.

Cyrtopogon positivus.

Cyrtopogon positivus Osten Sacken, West. Dipt., 307, 1877.

" ♂.—*Length* 7–8 *mm.*—Peculiar coloring of the thoracic dorsum; the extreme anterior margin and the posterior beyond the thoracic suture are grayish; the intervening space is of a rich dark brown, the usual stripes coalescing completely; they reach for a very short distance beyond the thoracic suture; the longitudinal dividing line of the median stripe is very feebly marked with a paler bloom (sometimes indistinct); front and face rather narrow, clothed with a brownish bloom and dense deep black pile; first segment of abdomen black, with very little white on the sides; posterior margin segments 2–5 marked with white on the sides only, the interruption growing wider on each subsequent segment "

Type.—M. C. Z. Three male specimens.

Habitat.—Webber Lake, Sierra Co., Cal. (July 22–24, Osten Sacken); Moscow, Idaho (F. H. Snow); Cloudcroft, N. M. (May 17, 23, 27).

Beard white. White pile on the first three abdominal segments tufted and quite long in proportion; it, together with the grayish bloom of the posterior portion of the thorax and scutellum, is one of the principal distinguishing features. Trichostical pile black. Legs wholly black, not abundantly clothed with black and white pile; bristles black.

I have a male from Moscow, Idaho, which I refer to this species. It is a trifle larger than the type material and is greased, but has the same characteristic white pile of the abdomen. There appears to be a white pruinose spot on the sixth segment; there is a similar spot on a corresponding segment of one of Osten Sacken's co-types which he failed to mention.

Cyrtopogon sudator.

Cyrtopogon sudator Osten Sacken, West Dipt, 307, 1877.

"♂ ♀.—*Length*, ♂ 8 5–9 *mm*; ♀ 8.5–10 *mm*.—Front and face distinctly broader than in either *evidens*, *rejectus*, *nugator* or *positivus*, clothed with a whitish hoary bloom; bloom on the thorax also whitish-gray in most specimens; the brownish stripes are variable, but often feebly marked, although distinct. Often abdominal segments are marked with white on the sides only; in the female, the usual white cross-bands on segments 2–4 are entire, on the fourth interrupted, occasionally subinterrupted on the fourth; in the male, interrupted on all segments."

Type.—M. C. Z. Two male and eight female specimens.

Habitat.—Webber Lake, Sierra Co. (July 22–24), and Summit Station, Central Pacific Railroad (July 17), Cal. (Osten Sacken).

Pile of face, front, thoracic dorsum, scutellum and before the halteres black; on the occiput, sides of abdominal segments white. Wings hyaline slightly tinged with grayish on the distal half.

ABERRANT SPECIES.

Cyrtopogon cerussatus.

Cyrtopogon cerussatus Osten Sacken, West. Dipt., 308, 1877.

"♂ ♀.—*Length* 6.5–8 *mm*.—Black; thorax whitish pruinose; abdomen with whitish cross-bands on the *anterior* margin of segments 2-6; the sides of the same segments posteriorly each with a large white spot; wings hyaline; legs black, with white hairs

"Face covered with a white hoary bloom; mystax black, more dense immediately above the mouth than higher up; facial gibbosity rather flat, little prominent; antennæ black; third segment three times the length of the first two taken together, narrow, almost linear; the style is very short, perhaps one-tenth of the length of the segment, cylindrical, with a minute bristle; ocellar tubercle rather large and broad, with deep grooves on each side between it and the orbit of the eye; both the tubercle and the opposite side of the groove are beset with black pile, which commonly form a distinct tuft on the top of the head; on each side of this tuft, along the orbits of the eye, there is a narrow margin of minute microscopic yellowish-white hairs; lower down, on the orbit, on a level with the antennæ, there is, on each side, a small tubercle, the upper and outer side of which is clothed with the same microscopic yellowish-white pile; the occiput is beset with white hairs, except in its upper part, where there are some black hairs. Thorax black, clothed with a thin gray bloom, three indistinct stripes are somewhat brownish; the lateral ones are incurved and somewhat expanded anteriorly, where they end in a brown spot above the humerus; the median line is simple and rather indistinct; the dorsum is clothed with short, sparse, white pile and longer black bristles; some of the latter form two rows on the lateral thoracic stripes Scutellum flat, with six black conspicuous erect bristles on its hind edge. The fan-like fringe of hairs in front of the halteres is usually mixed of black and white hairs, its upper part being black, the lower one showing some white hairs; in some specimens, principally males, it is altogether white. Abdomen black, polished, moderately convex, of nearly equal breadth; segments 2–6 anteriorly have a narrow cross-band of white bloom, not reaching the lateral margins; on that margin, in the posterior angles of each of the same segments, there is a large white spot. The two basal segments have some long white hairs on the sides. Legs black, densely clothed with short appressed white pile, beset with longer white hairs and black bristles; hind tibiæ gradually incrassated from the base to the tip; the first segment of hind tarsi also somewhat stout. Halteres pale brownish. Wings hyaline; venation normal."

Type.—M. C. Z. Six male and six female specimens.

Habitat.—Los Guilucos, Sonoma Co., Cal. (Osten Sacken, July 5, 1877).

"This species differs in many respects from the typical one of the genus. The broad ocellar tubercle with the deep grooves on each side of the antennæ, the row of erect bristles on the lateral stripes of the thoracic dorsum, the subclavate hind tibiæ, the shortness of the antennal style in proportion to the length of the third segment, the gently convex but hardly gibbose face, the conspicuous six bristles on the otherwise bare scutellum, are so many characters which are not found in other species."

Cyrtopogon gibber.

? *Cyrtopogon gibber* Williston, Trans Am Ent Soc, XI, 14, Pl I, fig 9, 1884

? ? *Holopogon ? appendiculatum* Bigot, Annales, 1878, 438

"♀—*Length* 7 *mm*—Dorsum of thorax strongly convex, front much excavated, facial gibbosity slight, posterior tibiæ and tarsi thickened Black, abdomen with narrow interrupted anterior cross-bands and small lateral spots, wings hyaline, cross-vein and costal cell at tip narrowly clouded with dark brown, anterior branch of the third vein angulated

"Face in profile only a little convex below, gray pruinose and with whitish bristles on the oral margin of the same color, but more pile-like above Antennæ black, the first two segments of nearly equal length, the third segment not twice as long as the first two together, not very slender, style acute, about half as long as the third segment, the tip with a bristle Front much excavated on the sides of the ocellar tubercle, which has a few black bristles, pile of the occiput below white, above black Thorax in profile remarkably convex and high, the convexity being greater on the front part, bare except with four rows of moderately strong bristles, of a rich brown color, with an irregular white stripe on the side in front Pleuræ dark brown lightly pruinose Scutellum small, bare except two erect black bristles at the tip, metanotum thickly white pruinose Abdomen gently convex, and gently and evenly tapering from the base to the tip, brownish-black, polished, with distinct gray pruinose markings, as follows On the anterior margin of the second segment with an interrupted narrow cross band, and a little beyond it two narrow transverse spots forming an abbreviated interrupted cross-band, near the middle and touching the lateral margin another smaller spot, third, fourth, fifth and sixth segments with an interrupted abbreviated cross-band, and a smaller lateral spot near the middle Legs black, femora with sparse white pile, tibiæ with white bristles, the posterior tibiæ considerably thickened gradually from the base, the metatarsi also somewhat thickened Wings hyaline, all the cross-veins and base of first submarginal cell, and the costa from the tip of second to the tip of fourth vein narrowly clouded with dark brown, a similar cloud at the furcation of the third vein, the anterior branch of which is angulated, and with a minute stump of a vein"

Type—University of Kansas A single female specimen.

Habitat—California (type)

Dr Williston appends the following notes "This species does not belong in *Cyrtopogon*, but it may be provisionally placed here until a better place is found for it It shows some relationship to *Holopogon*, but not as much as to several of

LASIOPOGON.

Lasiopogon Loew, Linnaæ Ent., II, 508, 1847.
Daulopogon Loew, Berl. Ent. Zeitsch , XVIII, 377, 1874.

Black species of small to medium size, of comparatively long body structure, and only moderately haired; with the ground color more or less obscured by a grayish or brownish bloom, which on the posterior portions of the abdominal segments is often grayish-white. Head of moderate breadth, obviously broader than high; face broad, but clearly narrowed above, on the lower half with a large protuberance which is wholly covered with a long and moderately thick haired mystax. Antennæ (Pl. IV, fig. 8) approximate, the first two segments short, the second shorter than the first, both with stout hair; the third segment elongate oval, of medium length, a trifle longer than the first two segments taken together; style distinct, bristle-like, a trifle less in length than one-half the third segment, and terminated by a fine bristle. Vertex broad, above much widened, saddle-shaped, hollowed out, with three parallel deep longitudinal furrows, the middle one of which begins at the anterior ocellus. The frontal orbits; ocellar tubercle, and upper occiput along the orbits with hair and bristles varying in number and stoutness. Ocellar tubercle fairly prominent, palpi very bare. Thorax but little arched, moderately hairy and with a varying number of well-developed bristles; scutellum with bristles; the pleuræ usually without pile, but with well-developed trichostical hair. Abdomen cylindrical, flattened, moderately bare, the last segment of the male short; the male genitalia large, with large forceps much as in *Asilus;* the last segment of the female proportionately short, the under lamellæ prominent, overlapping each other, with rounded ends. Legs rather slender, the hind femora not much more slender than the front ones. The first tarsal segment longer than the following ones but still, properly speaking, not long; the stout bristles of the tibiæ and tarsi only of medium length, those on the femora are very short and situated chiefly on the upper side toward the tip. The front tibia without a terminal claw-like spur; pulvilli normal. Wings usually grayish hyaline with all the submarginal and posterior cells wide open; the anal cell closed at the margin or slightly petiolate.

After establishing the generic name *Lasiopogon*, Loew discovered that it was already used as such in botany, and so changed his name to *Daulopogon*, which was adopted by Osten Sacken in his Catalogue (1878). As there is no rule demanding such a change, Dr. Williston was justified in restoring the older name in his Manual of N. Am. Diptera (1896). Osten Sacken states that this genus is quite abundantly represented in California, but the difficulty in recognizing the species from descriptions led him to describe but one species in his Western Diptera.

SYNOPSIS OF SPECIES *

1. Legs reddish-brown, abdomen polished black, the posterior margins and hind corners of the segments brownish, the latter grayish pruinose **terricola.**
Legs black, in *arenicola* yellowish-gray 2.
2 Abdomen grayish pruinose, with a dark spot on the anterior lateral margins of segments 2–6 3
Abdomen with the grayish bloom confined chiefly to the posterior margins of segments 2–6 4.
3 Bristles of body pale **arenicola.**
Bristles of body black **opaculus.**
4 Dorsum of thorax with two narrow widely separated, distinct black stripes **bivittatus.**
Dorsum of thor. x with stripes, but not as above. **tetragrammus.**

This key has been made with the type material before me.

Lasiopogon arenicola.

Daulopogon arenicola Osten Sacken, West Dipt., 310, 1877

"♂ ♀ —*Length* 7–8 *mm*—Brownish-gray, abdominal segments 2–6 each with a pair of semi-circular brown spots at the base.

"Brownish-gray, sometimes with a tinge of yellowish, the mystax and the few hairs on the vertex and on the upper part of the occiput yellowish-white, those on the lower part of the occiput pure white; antennæ black. Thorax with two, rather distant, brown stripes, expanded and somewhat diverging anteriorly; the hairs and bristles on the dorsum whitish, scutellum with a quantity of long, erect, whitish

---

* This key does not include the recently published species *quadrivittatus*, which Mr. Jones says is quite closely related to *arenicolor*.

hairs on its edge, a semi-circular impressed line parallel to this edge is very distinct Abdominal segments 2–6 at the base each with a pair of semi-circular brown spots, gradually diminishing in size on each subsequent segment, a vestige of such spots is also visible on the seventh segment Hypopygium of the male black, beset with whitish pile and with an appressed tuft of yellow hairs above the forceps In the female, the eighth segment is black, polished Legs yellowish-gray, with short appressed whitish pile and yellowish-white bristles Wings with a slight brownish tinge, the small cross-vein before the middle of the discal cell, second posterior cell sometimes very narrow, in some specimens even petiolate, the fourth posterior in some specimens, coarctate toward the end, even closed, these characters are very inconsistent "

Type —M C Z Four males and four females, two pairs of which are in coitu

Habitat —San Francisco, Cal., on the sands about Lone Mountain, April 6, and again June 29. (Osten Sacken)

This species and *opaculus* are similar in size and in spots of the abdomen, but *arenicola* possesses more pile and bristles than *opaculus*, and they are wholly pale, while the bristles of *opaculus* are chiefly black

Lasiopogon bivittatus.

Lasiopogon bivittatus Loew, Cent, VII, 57, 1866

Lasiopogon bivittatus Loew, Berl Ent Zeitsch, XVIII, 370, 1874 (note)

Daulopogon bivittatus Osten Sacken, West Dipt, 310, 1877

♂ ♀ —*Length* 8 *mm* —Translation Black, brownish-gray pruinose, the two narrow thoracic stripes black, separated by a broad interval, the median transverse vein of the vein projecting beyond the middle of the discal cell Length of body 4 lin, of wing 3-7-12 lin

Wholly black, mystax, pile of palpi, antennæ, front and vertex, black, beard whitish Thoracic dorsum covered with brownish bloom, black pilose, and marked with two narrow black stripes, separated by a broad interval, diverging anteriorly and subabbreviated, scutellum of the same color, black pilose, with the same depressed line as Osten Sacken mentions in his description of *arenicola*, pleuræ more grayish pruinose, with a little white pile, pile in front of the wings and the trichostical bristles black Abdomen black, polished, the first segment almost wholly, the posterior margin and sides of the remaining segments, broadly grayish-white pruinose Pile of the abdomen rather longer, sordid whitish, the posterior margin of the first segment toward the sides with a few black bristles Venter grayish pruinose with whitish pile Hypopygium large, black, polished, with black pile Legs wholly black, all the bristles and pile of the tibiæ and tarsi and of the apical third of the femora black, the pile of the rest of the femora sordid white, femora slightly grayish pruinose Wings grayish hyaline, veins blackish, the transverse median vein a little further removed from the base of the discal cell than from the apex

Type—M C Z A single female in the Loew collection is probably the type There are, in addition, four male and three female specimens in Osten Sacken's collection, which are probably those which he mentions in Western Diptera

Habitat—California (type), near San Francisco, March 28, (Osten Sacken), Los Angeles County, Cal (Coquillett), Mount Hood, Oregon (June 9)

This species and *tetragrammus* are similar in the coloration of the abdomen but markedly different in the stripes of the dorsum of the thorax

Lasiopogon opaculus (Pl IX, fig 6 Pl IV, fig 8)

Lasiopogon opaculus Loew, Berl Ent Zeitsch, XVIII, 367, 1874

♀—*Length* 8–9 *mm*—Black, thoracic stripes obsolete, terminal segment of abdomen polished black and black pilose, rest of the body wholly obscured by a grayish brown bloom, but the anterior angles of the several abdominal segments broadly brownish

Translation Ground color of body is, without exception, black, head, thorax and abdomen with a denser dull bloom, but the last abdominal segment wholly without bloom and polished black The bloom of the head and thorax yellowish gray, almost brownish gray, distinct thoracic stripes are not perceptible on the specimen described, yet the space between the middle and the lateral stripes appears darker than the surrounding color usually is The abdomen, excepting the last segment, is covered with a grayer bloom and entirely dull, from the second segment on, the anterior angles of the several segments are broadly brownish, which color is first on the fifth segment less in degree, on the sixth segment somewhat broadened on the fore part, likewise not very dense and gradually shades off into the gray, so that it is indistinctly defined, whereas it has a sharp distinctive limit on the preceding segments, which one distinctly notices when one looks at the abdomen from behind Halteres yellowish Wings grayish, venation normal, veins brownish-black the anterior cross-vein is considerably before the middle of the discal cell The hair and bristles are as usual in this genus, mystax, hair of the first two antennæ segments, of the front and of the upper part of the occiput black, the hair on the larger lower half of the occiput, on the mentum and on the under side of the proboscis* white, that on the lateral borders of the mouth opening pale yellowish Prothorax with more whitish hair, thoracic dorsum and scutellum with more blackish hair. Hair on the pleuræ whitish only in front of the mesopleural suture; beneath the base of the wing there is some stouter black hair. The hair on the first three abdominal segments is whitish, almost yellowish-white; on the gray pruinose area of the second segment there are numerous black hairs which also extend over onto the third segment; the short hair on the following segments, not excepting the last, is exclusively black. The prevailing black hair and the small amount of white hair of legs is arranged as usual; all the bristles of the legs black, as in the other species.

Type.—M. C. Z. Single female type.

Habitat.—Illinois (type); N. J. (Am. Ent. Soc.); Veta Pass, Col. (June 21).

Lasiopogon terricola.

Daulopogon terricola Johnson, Ent. News, XI, 326, 1900.

♂ ♀.—*Length* 5–7 *mm.*—Black, head and thorax grayish-brown pruinose; the abdomen polished black, the posterior margins and corners of all the segments, except the first, and the legs more or less reddish-brown; the posterior lateral margins of the abdominal segments grayish pruinose.

Head grayish pruinose; the front, except narrowly along the orbits, and the upper portion of the occiput brownish; the antennæ and proboscis black; the mystax, fine pile on lower half of occiput and the proboscis beneath white; the bristly hair of the basal segments of the antennæ, frontal orbits, ocellar tubercle and upper occiput black. Thoracic dorsum yellowish-brown pruinose, the humeri and scutellum more grayish; pleuræ grayish pruinose, more brownish on the mesopleuræ. On either side of the middle of the dorsum is a rather indistinct line of a much browner bloom. The short hair and bristles of the dorsum and the trichostical bristles blackish; a patch of pile on the lower part of the prothorax and on the coxæ white. Abdomen polished black, thinly white pilose and finely punctate; segments from the second on, with their posterior borders and posterior angles, brownish, but this color on the latter is more or less obscured by a grayish bloom; sides of the first segment and the venter grayish pruinose. Genitalia of male brownish, with whitish pile; spines of the female ovipositor black. Legs brownish; the coxæ, front, and usually the middle femora, except at tip and base, and the terminal segments of the tarsi blackish; the coxæ and femora more or less obscured by a whitish bloom; pile of coxæ and legs short, fine, white, the under side of all the femora with longer pile; all the bristles of the legs black. Wings grayish hyaline; the veins dark brown, sometimes slightly bordered with fuscous; the anal cell closed on the margin, all the posterior and submarginal cells open. Halteres whitish-yellow.

Type.—Collection of Prof. C. W. Johnson, Curator of the Boston Society of Natural History. There are two metatypes in the collection of the Massachusetts Agricultural College.

Habitat.—Chicopee, Mass. (May 18–24, F. Knab); Ocean County (J. B. Smith), Clementon (May 9, 30), Wenonah (May 14) and Riverton (May 29), N. J.

Prof. C. W. Johnson, who is responsible for the last three references, states that this is quite a common species during the spring on the low damp ground of southern New Jersey, where he has taken it in good numbers.

Lasiopogon tetragrammus.

Lasiopogon tetragrammus Loew, Berl. Ent Zeitsch , XVIII, 368, 370, 1874.

♀.—*Length about* 9 *mm.*—Translation. Black; the usual thoracic stripes fuscous, the intermediate one narrowly bisected, the lateral ones much abbreviated anteriorly, and the lateral ones of the same color; the space between the lateral and intermediate stripes and the last segment of the abdomen polished black, the latter white pilose the rest of the body black pilose; the several segments of the abdomen grayish pruinose on the posterior margin. Length of body 4–7-12 lin., of wing 4 lin.

Not greatly unlike *L. bellardi* Jaen , but the bloom of the head and thorax, with the exception of the more yellow of the face, yellowish-brown or almost deep brownish The bisected middle thoracic stripe blackish-brown, sharply defined, the lateral stripes greatly abbreviated anteriorly, of the same color, but less sharply defined; between the middle and lateral stripes on each side is insected a blackish-brown stripe, the fore part of which is bent outward and extends as far as the grayish pruinose humeri. Abdomen black, only moderately polished; the first segment everywhere, and the six following ones only on the sides and hind border, grayish pruinose; the last segment wholly without bloom and highly polished Halteres yellowish. Wings grayish, the venation normal, veins brownish-black; the small cross-vein lies considerably before the middle of the discal cell The arrangement of the hair and bristles is as usual in this genus. Mystax, hair on the first two antennal segments, the front and upper part of the occiput black; the hair on the larger lower part of the occiput and on the under side of the proboscis white; that on the lateral oral margins yellowish-white The prothorax only on the sides with more whitish, above with more black hair; dorsum of mesothorax and scutellum with black pile and bristles; the scant pile on the pleuræ whitish in front of the mesopleural suture, the fine hairs and the trichostical hair black. The first abdominal segment whitish pilose, on the posterior lateral margins with black bristles, the pile on the whole lateral margin of the second segment and on the outermost lateral edge of the third segment is white, the pile of the rest of the second and third and of the following four segments is wholly black, that of the last segment whitish, on each segment, beginning with the second, there is a transverse row of perhaps four conspicuous black bristles The prevailing black and sharply-defined white hair of the legs is arranged as usual all the bristles are black

Type—M C Z A single female type specimen from Canada (Provencher)

Habitat—Canada, White Mts, N H

Osten Sacken has named a male and a female *Lasiopogon* from the White Mountains *opaculus* with a question mark They are not *opaculus* I believe they are *tetragrammus* They agree with the type of the latter in size, general coloration of abdomen, but the genitalia are rather larger, grayish-brown pruinose, with black pile

Lasiopogon quadrivittatus.

Lasiopogon quadrivittatus Jones, Trans, Am Ent Soc, XXXIII, 278, 1907

"♀—*Length* 9–11 *mm*—Near *L arenicola* O S Black, covered everywhere with a dense grayish bloom Front broad, densely gray pruinose, hair everywhere whitish, that of the occiput with a more decided yellowish tinge, beard and hair on occipital margin fine, silky and purer white Face in profile with a strong gibbosity reaching more than half the distance from the oral margin to the base of the antennæ Antennæ black, first two segments nearly equal second a trifle longer than the first, the third longer than the first two taken together, style about one-half as long as the third segment, first two segments of the antennæ with whitish hair Thorax black, covered with dense grayish bloom and very fine white pile, a few light colored bristles on the lateral margins and posterior part of the dorsum, four brownish, nearly median stripes on the dorsum, diverging anteriorly, the bloom on the lateral margins brownish forming an obscure stripe The interval between the inner stripes is wider than that between the others, so that there appears to be two geminate stripes Scutellum flat, covered with a bloom similar to that of the thorax, and with a row of light colored bristles on the posterior margin Bloom of the pleuræ gray, with a brownish tinge Halteres yellowish, the trichostical hairs white Abdomen black, covered with dense grayish bloom and very fine, short, decumbent whitish pile, anterior margins of the second, third and fourth segments reddish-brown, last segment polished black Bristles on the posterior margins of the first segment whitish Legs black, covered with dense, fine, whitish pile, longer on the under side of the femora and interspersed with a few light colored bristles Coxæ and legs with brownish gray bloom, thicker on the coxæ, coxæ with long white pile Wings hyaline anal cell closed and petiolate, fourth posterior cell slightly narrowed at the margin of the wing, anterior cross-vein at the middle of the discal cell "

Type —One female type and two female paratypes, in the collection of the University of Nebraska

Habitat —Halsey (type, June 1, 1906, H S Smith), and War Bonnet Cañon (May 27) and Bad Lands, Mouth of Monroe Cañon (May 28), Sioux Co , Nebr

"This species can be readily distinguished from *L arenicola* Osten Sacken, in being more densely pruinose and not so densely pilose as that species The thoracic stripes will also serve to separate them, and my specimens of *L arenicola* from Southern California have a few black bristles in the lateral margins of the thorax which *quadrivittatus* does not have "

I do not know this species

METAPOGON.

Metapogon Coquillett, Proc Ent Soc Wash , VI, 181, 1904

"Near *Cyrtopogon* but the face is nearly flat, only slightly swollen on the lower part, the mystax very sparse except along the oral margin and composed chiefly of bristles, etc head unusually broad, over twice as broad as high, deeply excavated on the vertex, ocelli tubercle very prominent, front only slightly widening upwardly, at its lower end about three-fifths as wide as either eye, face slightly widening below, subequal in width to the front eyes unusually prominent (nearly as in *Holcocphala abdominalis*), antennæ less than twice as long as length of head, the first segment subequal in length to the second, the latter as wide as long, each bearing a stout bristle on the under side, third segment nearly twice as long as first two together, slightly widening outwardly, about five times as long as its greatest width, style less than half as wide as the third joint and at most one-third as long, proboscis straight, tapering to the tip Mesonotum greatly swollen, provided with strong bristles Abdomen cylindrical Femora with long but slender bristles on the under side, tibiæ and tarsi with strong bristles, front tibiæ devoid of a stout spur at the apex, pulvilli well developed, not unusually thick. Marginal, submarginal and posterior cells open, the anal open or closed in the margin, the fourth posterior with a cross-vein at its base, the fifth separated from the discal by the fourth."

Type.—*Metapogon gilvipes* Coquillett, U. S. N. M., Cat. No. 7954.

As this genus is known to me only by the type material consisting of the unique type of *gilvipes* in poor condition, and a specimen of each sex of *punctipennis*, I have used the original descriptions. The arrangement of the bristles of the mesonotum resembles much that of *Lestomyia*, and easily catches the eye.

SYNOPSIS OF SPECIES.

Abdomen yellowish-gray pruinose; hind margins of segment 1, a large triangular spot on segments 2–6, segment 7 entire, and genitalia, polished .... **gilvipes.**

Abdomen polished; segment 1 gray pruinose on base and sides, segments 2–6 each with a gray pruinose spot on the base. **punctipennis.**

Metapogon gilvipes.

Metapogon gilvipes Coq., Proc. Ent. Soc. Wash., VI, 182, 1904.

"♀.—*Length* 6 5 *mm.*—Black; the first two joints of the antennæ and the legs, except the tarsi toward their apices, brownish-yellow, the halteres light yellow. Mystax yellowish, its bristles arranged in three rows on lower half of face, bristles of occiput whitish, those of the ocellar tubercle black Antennal style about one-third the length of the third segment. Bristles of mesonotum black; the hairs very short and sparse; bristles and hairs of hypopleura white; mesopleura, pteropleura and sternopleura bare; scutellum rather flat, nearly bare, with subapical pair of stout bristles. Abdomen yellowish-gray pruinose, the hind margin of the first segment, a large triangular spot on the five succeeding segments, covering nearly the whole of the hind end of each segment in the middle, also the whole of the seventh segment and the genitalia polished. Hairs and tarsi dark brown, tarsal claws black. Wings hyaline; veins and cross-veins beyond base of first submarginal cell indistinctly bordered with pale brown; small cross-vein nearly three-fourths of the length of the discal cell."

Type.—U. S. N. M., Cat. No. 7954. A single female specimen in poor condition.

Habitat.—Los Angeles Co., Cal.

Metapogon punctipennis.

Metapogon punctipennis Coquillett, Proc Ent Soc Wash, VI, 182, 1904

"♂ ♀ —*Length* 7 *mm* —Black, the first two segments of the antennæ, the tibiæ, bases of tarsi and extreme apices of femora reddish-yellow, the halteres pale yellow, all hairs and bristles white Antennal style about one-fifth as long as the third joint, mystax ascending about three-fourths the height of the face Mesonotum grayish pruinose, marked with a submedian pair of black vittæ which extend from the front end three-fourths of the distance to the scutellum, also with a pair of blackish spots on either side separated by the suture, hairs of mesonotum very short and sparse, mesopleura, pteropleura and sternopleura bare, scutellum flattened, nearly bare, thinly grayish pruinose bearing a subapical pair of stout bristles Abdomen polished, first segment gray pruinose on the base and sides, second with a gray pruinose fascia near the base and an oblique spot in each hind angle, segments 3–6 each with a gray pruinose fascia at the base connected at either end with an oblique spot that extends to the hind angle of the segment, the spots on the segment of the female separated from the fascia each of these fasciæ are rather strongly narrowed in the middle of the posterior side, a gray pruinose spot on either side of the seventh segment Wings hyaline, veins and cross-veins at base of the discal, posterior and submarginal cells, distinctly, but rather narrowly clouded with brown, the small cross-vein nearly two-thirds the length of the discal cell"

Type —U S N M, Cat No 7955 A single specimen of each sex

Habitat —Organ, N M (T D A Cockerell)

PLESIOMMA.

Plesiomma Macquart, Dipt Exot, I, pt 2, 54, 1838

Strikingly different from all other Asilids in that the large eyes of both males and females are nearly contiguous above, or noticeably approaching that condition, thus the face is very broad below and gradually narrows upwards so that the face and front together form a triangular area Antennæ are situated on a line with the middle of the eyes or a trifle above segments 1 and 2 subequal, cylindrical, with bristles above and below, segment 3 subequal to segments 1 and 2 taken together, more or less oval, with short forward directed bristles on its upper side, style distinct, more or less bristles-like Ocelli borne on a slight elevation and vary in their location from midway between the antennæ and the vertex to nearer the vertex. Mystax usually consists of a single row of bristles on the oval margin which is about one-half the distance between the antennæ and the proboscis. Thoracic dorsum with bristles on the humeri and posterior margin; pleuræ bare, trichostical bristles present. Abdomen in both male and female long, slender, narrowed toward the base; segment 1 with bristles on its lateral margins; genitalia but little prominent. Legs long, slender; front tibiæ without a terminal claw-like spur. All the posterior cells of the wings open: the fourth narrowly so; anal cell closed at the margin.

According to Macquart, the founder of this genus, the ocelli are situated midway between the antennæ and the vertex in his type species, *testacea* (patria inconnue). This is true of the North American forms only in *leptogaster*, but in *indecora*, *funesta* and *lineata* the ocelli are higher up on the front, and in *unicolor* much nearer to the vertex than to the antennæ. Their position varies with the degree of contiguity of the eyes. The nearer the eyes approached each other at the vertex, the farther down upon the front are the ocelli found.

In North America, *Plesiomma* is a strictly southern genus, being well represented in the West Indies, especially in Cuba; our only United States form thus far known is *unicolor* from New Mexico and Texas.

This genus differs from *Deromyia*, which it somewhat resembles, in that the eyes are nearly contiguous above, the nearly central position of the styled antennæ and the relative position of the oral margin and the ocelli. Also in the open fourth posterior cell, the more slender abdomen and legs and the absence of the terminal claw-like spur from the front tibiæ.

Type.—Plesiomma testacea.

SYNOPSIS OF SPECIES.

I have seen the types of *funesta*, *indecora* and *leptogaster*, and specimens of *lineata* at the M. C. Z. and although *unicolor* is the only *Plesiomma* now known from the United States, I will include them in the following table.

1 Black species, with black wings (Cuba) **funesta.**
More yellowish species 2
2 Body and legs wholly brownish-yellow, without black markings **unicolor.**
Body not wholly yellowish 3
Thoracic dorsum with three black vittæ, bristles of thorax reddish (West Indies, San Domingo, Mex) **lineata.**
3 Thoracic dorsum not so marked, wings brownish with yellowish areas 4
4 Abdomen unusually slender, eyes closely approximated above, ocelli equidistant between the vertex and antennæ (Cuba)· **leptogaster.**
Abdomen rather stout, ocelli situated higher up than in *leptogaster* (Cuba, Jamaica) **indecora.**

Plesiomma unicolor (Pl VI, fig 5)

Plesiomma unicolor Loew, Cent , VII, 35, 1866

♂ ♀ —*Length* 19 *mm* —Wholly brownish yellow, posterior margins of the last abdominal segments occasionally slightly darkened, wings blackish, the costal portion of the cells much lighter

Entirely brownish yellow front, toward the vertex, less narrow than is usual in *Plesiomma*, and the ocelli much nearer to the vertex than to the antennæ Face and occiput slightly golden pruinose, the bristles of the mystax more in number, weaker, and arranged in two irregular rows instead of in one, as in most of the species of this genus from North America Segment 3 of the antennæ short, oval, tapering slightly, and with fewer bristles on its upper side than is usual, style bristle like, nearly one half as long as the segment Segments 1 and 2 of the antennæ, the ocellar tubercle and the occiput, with well developed bristles The hair of the dorsum longer than usual, of the abdomen short, on the intermediate segments for the most part black, the rest reddish-brown, the bristles of the entire body brownish-yellow Claws black, reddish at base Wings rather broad, blackish, the center of all the cells, excepting the costal and subcostal, lighter yellowish

Type —M C Z One male and one female specimen

Habitat —N M , west Tex (July 7, Osten Sacken), Cotulla, La Salle Co , Tex (J C Crawford, May 5)

The female from Cotulla, Texas, leads me to believe that the pale areas of the wing are variable In this specimen only the second submarginal and the fifth posterior cells have a distinct spot, and there is an indistinct pale band extending from the outer end of the second basal cell to the costa

[NOTE.—Since leaving Amherst I have been informed by Mr. Coquillett that a specimen of *Plesiomma*, named by myself *unicolor*, is the same as Schiner's *longiventris*. This being the case, *longiventris* becomes a synonym of *unicolor*, being published in Verh. Zool.-Bot. Ges., 1867, p. 375. The specimen in question agrees with Loew's type of *unicolor* and comes from the type locality.

HOLCOCEPHALA.

|| *Discocephala* Macquart, Dipt. Exot., I, 2, 50, 1838.
Holcocephala Jaennicke, Neue Exot. Dipt., 51, 1867, name changed.

Rather small species. Head very much broader than the thorax (Pl. V, fig. 4) and strongly compressed anterio-posteriorly, hence the old generic name, *Discocephala*. Eyes proportionately very large, giving the head a "goggle-like" appearance; the facets on the fore part very large, but gradually decreasing toward the upper, outer and lower margins. Face broad, not at all swollen, somewhat excavated along the orbits; mystax sparse and confined to the oral margin. Antennæ small, not closely approximated; first two segments very short, rounded, with weak bristles above and below; third segment cylindrical, twice the length of the first two segments taken together; style well developed, distinct, proximally nearly as broad as the third segment, distally narrowed to a point. Front deeply excavated; ocellar tubercle large, prominent. Proboscis weak; palpi small, cylindrical, almost as long as the proboscis and terminated with long pile. Thorax strongly arched, without bristles; scutellum without pile or bristles. Abdomen variable but never longer than the wings, more or less, or not at all, coarctate. Male genitalia in part composed of a pair of lateral lamellæ above, a pair of long slender forceps originating from the venter of the last segment and curved upward, and a prominent, three-pronged penis, curving downward and backward between the forceps. Hind tibiæ swollen distally, and the metatarsi much enlarged in the male, not as much so in the female and at least twice as long as the following segments; legs sparsely clothed with fine pile and bristles, the latter on the femora confined to the lower side; the front tibiæ without a terminal claw-like spur.

Wings longer than abdomen, all the posterior cells broadly open; anal cell variable.

Type.—Macquart states that *D. oculatus*, *rufithorax* and *Discocephala rufiventris* (*abdominalis*) are the typical species.

SYNOPSIS OF SPECIES

Abdomen reddish-yellow	**abdominalis.**
Abdomen brownish; posterior margins of segments 1–3 grayish pruinose	**calva.**

Holcocephala calva.

Discocephala calva Loew, Cent, X, 35, 1872.
Holcocephala calva Osten Sacken, Cat, 1878, 71.

♂ ♀.—*Length* 8–9 *mm*—Small black species but with the ground color wholly concealed above by a dark brown bloom and on the face, occiput, humeri, above base of wings, posterior portion of thoracic dorsum, scutellum, pleuræ, coxæ, metonotum and, in varying degrees, on the posterior margins of the abdominal segments and the venter grayish pruinose. Eyes bronze, antennæ and proboscis black; palpi reddish. Mystax, hair of palpi, occiput and legs white. The dark bloom of the thoracic dorsum is broken by indistinct lines of grayish bloom along the sutures. In greased specimens the humeri, posterior callosities and coxæ appear reddish. Halteres dark Abdomen brownish pruinose, noticeably contracted toward the base, more slender and elongate than that of *abdominalis*, distally, especially in the female, a trifle dilated; penis of male three-pronged, and usually well exerted as in *abdominalis* The grayish bands on the posterior margins of the segments appear distinctly only on the first three segments Legs dark reddish-yellow; all the femora and tibiæ darker on their distal portions; the front tarsi darker than the others Wings blackish, not quite as broad as in *abdominalis*, all the posterior cells open, closed or petiolate

Type.—M. C. Z. A female specimen.

Habitat.—Texas (type); Western N. Y. (Osten Sacken); Princeton (July 21), and Cumberland Co. (Sept. 1); N. J. (Smith Cat.); Phil., Pa. (Aug. 7); Tifton, Ga. (Oct. 3, C. W. Johnson); Juniper Creek, Fla. (May 15, C. W. Johnson).

Holcocephala abdominalis (Pl XI, figs., 4, 5; Pl IV, fig. 6).

Dasypogon abdominalis Say, Jour Acad Sci. Phil, III, 50, 1823; Compl Works, II, 64
Dasypogon abdominalis Wiedemann, Auss. Zw, I, 412, 1828.
Discocephala rufiventris Macquart, Dipt. Exot, I, 2, 50, Pl. IV, fig. 2, 1838

Dasypogon æta Walker, List, II, 362, 1849

Dasypogon laticeps Van der Wulp, Tijdschr v Ent X, 137, Pl III, figs 10–16, 1867 (Loew in Zeitsch f Ges Naturwiss , XXXVI, 115, 1870)

Holcocephala abdominalis Jones, Trans Am Ent Soc , XXXIII, 278, 1907 (locality note)

♂ ♀ —*Length* 4 5–7 *mm* —Small yellowish species with broad blackish wings legs reddish tips of all the tibiæ and of the tarsal segments more or less black

Head black face and front dull brassy-yellow pruinose, occiput grayish pruinose, the mystax and occipital hair pale golden, eyes black, with bright bronze reflections Antennæ as figured, black, ocellar tubercle and proboscis black palpi dark reddish, with pile of the same color Thorax polished black but wholly concealed beneath a dense clothing of brownish yellow bloom a very broad median and lateral stripes of rich brown all greatly abbreviated behind the lateral ones bisected at the suture and considerably attenuated posteriorly These stripes are apt to vary in distinctness The pleuræ are more grayish pruinose in several specimens Halteres sordid brown Thorax and abdomen without bristles the latter rather stout broad at base, but tapering toward apex bright yellow in fresh specimens, more faded in dried ones In drying, the abdomen usually becomes much shriveled In the male the penis is three pronged and prominent Legs reddish, tips of all the tibiæ and of the tarsal segments and the claws more or less blackish the femora sometimes black above , pile of legs rather sparse and the bristles numerous and weak, on the femora confined to the lower side Wings blackish with violaceous reflections, somewhat paler on the outer portion all the posterior cells open the anal cell closed and petiolate

Type —Type of Say's *abdominalis* is lost

Habitat —White Mts , N H (Mrs A Slosson), Amherst, Mass (July 14–22, in large numbers, Aug 29), Conn (July 16), N Y (July), Princetown (July 21), Dunnfield (July 9), Cumberland Co (Sept 1), N J (Smith Cat), Pa ,Raleigh, N C (July 15, F Sherman, Jr), Tifton, Ga (July 18, C W Johnson), St Augustine, Juniper Creek (May 15), Fla (C W Johnson), Wis , Cedar Bluffs and Meadow, Nebr (P R Jones), Opelousas, La (May, C W Johnson), Tex , Ks , Ky , Ala , Brazil

This is a widespread species inhabiting damp localities, I have taken specimens in large numbers in the sweeping net in rather damp grass lands where they are found clinging to the grass stems. I have found many specimens, but they show little variation except in the intensity of the black markings of the legs.

HOLOPOGON.

Holopogon Loew, Linnæa Ent., II, 473, 1847.
Holopogon Schiner, Fauna Austr., I, 129, 1862.

Small species. Head proportionately rather broad (Pl. V, fig. 5), but not at all "goggle-like" as in *Holcocephala;* face of average equal breadth, only very greatly swollen, without protuberance; mystax extends up to the antennæ, composed of very fine outstanding pile. Front above somewhat broader; vertex but slightly hollowed out, ocellar tubercle distinct; the front and occiput usually well clothed with fine erect pile. Antennæ (Pl. IV, fig. 7) nearly approximate, short, slender; first two segments cylindrical, subequal, the first a trifle longer, the third segment longer than the first two taken together, tapering toward the tip; style very slender, likewise tapering, nearly or quite as long as the third segment; both the first and second segments with long bristly hairs beneath. Thorax short, dorsum strongly arched, usually with pruinose markings, and sparse, erect, fine pile; pleuræ more or less pilose. Abdomen rather cylindrical, somewhat flattened, usually polished, with very fine microscopic pile on the tergum, with longer pile on the sides at base, and on the venter; male genitalia small. Legs rather slight, the front tibiæ without a terminal claw-like spur; the hind tibiæ very much thickened, their metatarsi likewise greatly thickened and swollen; pulvilli normal. The femora clothed with delicate pile, the tibiæ and tarsi with fine pile and longer bristly hair. All the submarginal and posterior cells of wing wide open; the fourth only slightly narrowed; anal cell closed and with a short peduncle; the second posterior cell long and narrow.

The species of this genus, now known, are small, ranging from four to eight millimeters; usually of a general black color, and with fine outstanding pile on head, thorax, and on the abdomen on sides at base and venter. The species as a whole are characterized by the broad but not "goggle-like" head, the well-arched thoracic dorsum and the very stout hind tibiæ and their swollen metatarsi. In this last respect they resemble much the species of *Holcocephala.*

?Holopogon appendiculatus Bigot is not an *Holopogon;* I do not know what it is.

SYNOPSIS OF SPECIES.

1.	Wings deep black, except at tip	**atripennis, lautus.**
	Wings not deep black	2.
2.	Tibiæ and tarsi reddish	**snowi.**
	Legs wholly black	3.
3	Wholly white pilose species	**seniculus.**
	Not wholly white pilose species	4
4.	Pile of body almost wholly brownish, very dense, especially on venter of abdomen from base to tip	**umbrinus.**
	Pile of thoracic dorsum chiefly black; white in varying amounts on the anterior and posterior portions ..	**guttula.** **phœonotus.**

Holopogon atripennis n. sp (Pl XI, fig. 1)

♂ ♀.—*Length about* 6 *mm*—Wholly deep black, the wings deep black, except on the outer fourth, where they are paler, but not pure hyaline.

Wholly black; face and front grayish pruinose; the face of the male clothed with black hair, with a few white ones intermixed; that of the female with a predominance of the white hairs In the male the pile of the front, dorsum and pleuræ of thorax is black; that of the coxæ and abdomen white; in the female the pile of the pleuræ and part of that of the dorsum is white. Legs black, with white pile and slender black bristles. Halteres yellowish Wings black, on the distal fourth paler, but not pure hyaline; many of the veins very narrowly bordered with a pale line; venation normal.

Type.—Am. Ent. Soc. of Phila. One male and one female specimen.

Habitat.—The type localities are Highrolls (June 2, 1902), and Cloudcroft (June 19, 1902), N. M.

In both specimens the thorax is greased, there are traces of a golden pruinose spot on the humeral angles of the thorax, and a paler bloom on the pleuræ. I regard the black wings as the best distinguishing feature.

Holopogon guttula.

Dasypogon guttula Wiedemann, Dipt. Exot., 228, 1821.
Dasypogon guttula Wiedemann, Auss. Zwei., I, 411, 1828.
Dasypogon guttula ? Walker, List, II, 355, 1849.
Holopogon philadelphicus Schiner, Verh. Zool. Bot. Ges., XVII, 360, 1867.
Holopogon philadelphicus Loew, Berl. Ent. Zeit., XVIII, 367, note, 1874.
Holopogon guttula Johnson, Psyche, 76, 1905.

♀.—*Length* 6–7 *mm.*—Black, the abdomen polished blue black, the pleuræ and a large angular spot above and behind and including each humeral angle grayish white; the rest of the dorsum thinly clothed with a dark olivaceus bloom.

Face and front yellowish brown pruinose, the occiput more grayish; pile of face, except on the extreme oral margin and the beard white; that of the wholly black antennæ, front, tubercle and upper occiput black. Thorax, when viewed from before, shows on each side two grayish white pruinose spots including the humerus and extending above and inward to the obscure median geminate stripe and backward nearly to base of wings; rest of dorsum clothed with a thin brownish black, in some lights olive black bloom; pleuræ and coxæ grayish white pruinose. Dorsum of thorax and scutellum with black, not very prominent black pile; the white pruinose spots, posterior callosities and the pleuræ with white pile. Trichostical pile long and white. Abdomen highly polished with bluish reflections, the microscopic pile of the tergum and the longer pile of the sides and venter wholly white. Legs wholly black, the long pile white, the weak bristly hair black, the front tibiæ and their metatarsi clothed on the inner side with a dense golden pubescence. Wings hyaline, beautifully violescent, veins black; venation normal.

Habitat.—North Saugus, Mass. (July 6), Penn., N. J., N. C., Savannah, Ga., Ormond, Fla. (Mrs. Slosson, Apr.). Prof. C. W. Johnson in Smith's list reports this species from the following places in New Jersey: Clementon (May 30), Newark (June 14), Jamesburg (July 4), Dunnfield (July 9). In the National Museum, Mr. D. W. Coquillett has identified specimens from Ariz., Col. and Mont.

The above description was made from a fresh perfect specimen taken by the writer at North Saugus, Mass. In the collections of the Massachusetts Agricultural College and the Am. Ent. Soc. of Phila. are several partially greased specimens of both sexes, they agree for the most part with the above description, but there seems to be in some individuals a tendency for the mystax to be almost wholly black, or white and black mixed, and the wings do not seem to be quite so clear In badly greased specimens the white pruinose spots of the dorsum show only faintly

The writer has seen this species resting upon the dead twigs of the sweet fern (*Myrica asplenifolia*) from which it would dart after its prey

Holopogon lautus.

Holopogon lautus Coq , Jour N Y Ent Soc , XII, 33, 1904

"♂—*Length* 6 *mm*—An unusually broad, robust species Black, the halteres yellow, their bases brownish, hairs and bristles white or yellowish, hairs of mesonotum except posteriorly, very short and sparse Head gray pruinose, hairs of mystax very sparse, the bristles confined to two or three rows along the oral margin, first two segments of antennæ subequal in length, together about three-fourths as long as the third, the latter slightly longer than the slender style Thorax and scutellum opaque, grayish pruinose, mesonotum with three con fluent brownish-black stripes, abbreviated posteriorly, and the outer pair much abbreviated anteriorly Abdomen somewhat polished Hind legs considerably thickened, the tibiæ on the outer and inner sides and the first tarsal segment both above and below quite densely fringed with rather short hairs Wings from base to beyond apex of discal cell dark brown, the limits of this color strongly arcuate, the remainder of the wing hyaline apex of second vein before middle of second submarginal cell, wings very broad, the alulæ quite strongly developed "

Type—A single male specimen in the collection of the Brooklyn Institute of Arts and Sciences

Habitat—Texas

I have not seen this species In wing colonization it must closely resemble *atripennis*

Holopogon nitidiventris.

Holopogon nitidiventris Bigot, Annales, 1878, 437

♀—*Length* 7 *mm*—Translation—In all respects like *H tenerum* (see remarks), excepting thorax is covered with a reddish bloom, lateral margins of dorsum grayish, halteres of a clear testaceous, hair of coxæ and femora deeper, abdomen gray, each segment adorned behind with a large triangular spot and on each spot marked with a rounded point of polished black, tarsi somewhat brownish, wings quite clear, of a brownish tinge, which is more marked and intense along the transverse veins, the longitudinal veins at base of wing deep testaceous

Type —Bigot collection

Habitat —California (type)

H tenerum is a Chilian species The points of similarity between it and the above are "antennæ at the base black (rest wanting) * * hair of vertex, front and occiput black, beard white, face of a pale yellow, * * coxæ with white reflections and white bloom * * legs polished, covered with a white bloom beneath, pulvilli whitish

I have never seen either *nitidiventris* or *tenerum*, but doubt the generic position of *nitidiventris*

Holopogon phæonotus.

Holopogon phæonotus Loew, Berl Ent Zeit , XVIII, 366 1874

♀ —*Length about* 6 *mm* —Translation —Black thorax opaque, with very broad dorsal stripes confluent brownish black, the median one entire, the lateral ones abbreviated humeri and the lateral margins as far as the wings broadly grayish white pruinose wings grayish, veins brownish black Oral margin basal segments of antennæ front, upper half of occiput thoracic dorsum excepting the posterior angles and the tarsi black pilose the scutellum covered with longer black and shorter white pile Mystax except the oral margin posterior angles of thorax pleuræ abdomen coxæ femora and tibiæ white pilose the stouter bristles of the tibiæ and the bristles of the tarsi are black A truly normal *Holopogon*

Type —M C Z A single female specimen

Habitat —Texas (type), Highrock, N M (June 2, Am Ent Soc)

This species is based upon a single female, which, by direct comparison, differs so little from the female *guttula* that it is almost impossible to separate them in a key The legs are wholly black

Holopogon seniculus.

Holopogon seniculus Loew, Cent VII 62 1866

Holopogon seniculus Jones, Trans Am Ent Soc XXXIII, 279, 1907 (locality note)

♂ ♀ —*Length* 5–7 *mm* —Wholly black easily distinguished from all the other species herein described by the long white or whitish pile of the head, thorax, basal segments of abdomen and legs, and by the pure hyaline wings with yellowish veins

Black, polished, head and thoracic dorsum covered with a whitish bloom, which on the middle of the dorsum is very thin, but more dense on the head and humeral angles of the thorax; the pleuræ and coxæ likewise very thinly white pruinose. Abdomen polished black, on the tergum almost bare. Mystax and pile of entire body of male, snow-white, of the female white or sometimes pale yellow and, aside from the very short pile of the tergum of the abdomen, very long. In the male, the pile of the venter of the abdominal segments 1–3 is long and forms a large tuft which can readily be seen from above. Legs wholly black; pulvilli pale Wings purest hyaline, veins pale yellow; venation normal

Type.—M. C. Z. The type series consists of four male and five female specimens.

Habitat.—Neb. (type); Glen, Sioux Co., Neb. (P. R. Jones); Lorrey's Lake (Sept. 7) and Carbon Co. (Am. Museum), Wyo.; Col. (Aug., C. W. Johnson). Prof. R. A. Cooley has sent me specimens from the following places in Montana: Lombard (July 25, elev. 4,000 ft.), Livingston (July 14), East Flathead (July 25, elev. 5,700 ft.), Bozeman (June 25, July 3, elev. 4,800 ft.), and Lolo Mount, (July 1).

In specimens which have been kept a long time under poor conditions, and those which have become greased, the pile is matted or otherwise injured, so that it does not appear very prominent.

Holopogon snowi n sp (Pl. XI, fig. 2).

♀.—*Length* 6–8 *mm.*—Black; when viewed from the side, the grayish bloom of the anterior portion of the thoracic dorsum and of the pleuræ stops short at the transverse and mesopleural sutures respectively; legs black, the tibiæ and tarsi dark reddish.

Wholly black, including the antennæ; the abdomen highly polished; pile of the entire body white, except that on the upper occiput, basal segments of antennæ, a few hairs on the upper and lower portions of face and on the posterior portion of dorsum, which are black Face and front densely brownish-yellow pruinose; the occiput black; the ocellar tubercle with a tuft of white hair. The pruinose spot on each side of the thoracic dorsum, including the humerus and extending inward to the median thoracic stripe and backward as far as the transverse suture, is gray, with a slight tinge of yellow; the bloom of the pleuræ is most dense upon the mesopleuræ. When viewed from the side, the bloom of thoracic dorsum and pleuræ stops suddenly at the transverse and mesopleuræ sutures respectively; the remainder of the pleuræ is clothed with a pale bloom, which is nearly or quite as dense on the sternopleuræ as on the mesopleuræ, but elsewhere very much thinner and hardly perceptible. The broad median thoracic stripe extending from the prothorax, a large spot confluent with it on each side in front of the transverse suture, the entire dorsum behind the suture and the scutellum, with a very thin blackish bloom nowhere wholly obscuring the polished black ground color Abdomen wholly polished black, nearly bare, the pile of the tergum microscopic and sparse, that of the sides, especially of the first segments and on the venter, longer Femora polished black, the tibiæ and tarsi reddish, pile of legs white, the long fine hair like bristles of the under side of femora, and many on the tibiæ, white, the remaining bristles of the tibiæ and tarsi black Halteres sordid white Wings pure hyaline, veins black, brownish toward base venation normal

Type—University of Kansas Two female specimens

Habitat—Type locality, Clark Co, Ks (May, elev 1,692 ft, F. H. Snow)

I have named this species in honor of Dr F H Snow, Chancellor and Professor of Entomology and Zoology at the University of Kansas, through whose kindness I was able to study this species

Holopogon umbrinus n sp

♀—*Length* 6 5 *mm*—Wholly black, polished, very pilose, the pile of body almost wholly dark brown, dense on the venter of abdomen from base to tip, wings dusky

Wholly black, polished, very pilose Face and front only grayish pruinose, wholly clothed with black pile on the ocellar tubercle with a few paler hairs Occiput with dense black pile, only narrowly below and on the base of the proboscis with white pile Sides of prothorax, the coxæ and a small patch on the sides of the first abdominal segment with white pile legs with some scattering white pile Pile of body and legs elsewhere dark brown, extremely dense on the scutellum and on the sides and venter of the abdomen,—much denser and longer than on any of the other species In the male of *seniculus* the pile is fully as dense on segments 1–3 of the abdomen, but it does not continue thus to the tip of the abdomen as it does in *umbrinus* Halteres lemon-yellow Legs black, the front and middle pair slightly pitchy Wings dusky hyaline

Type—M C Z A single female specimen

Habitat—Webber Lake, Sierra Co, Cal (July 25, O Sacken)

The above description refers to the *Hopogon* specimen mentioned by Osten Sacken in his Western Diptera, page 310 The specimen is at the M C Z and bears a label with the specific name *umbrinus*, which I have retained It is very distinct from the other *Holopogon* species known to me

HETEROPOGON. .

Heteropogon Loew, Linnæa Ent., II, 488, 1847.
Heteropogon Schiner, Fauna Austr , I, 132, 1862
Anisopogon Loew, Berl Ent Zeit., XVIII, 377, 1874: changes name to *Anisopogon* on account of prior use of *Heteropogon* in Botany.
Anisopogon Coquillett, Can Ent , XXV, 20, 1893 (synopsis of species)

Slightly to quite hairy species of medium size; thorax short, much arched; head set very low in comparison with the height of the thoracic dorsum, much broader than high; face moderately broad, of equal width, hardly convex, without protuberance; mystax dense and, on the oral margin, composed of longer, denser, stouter hair, above with finer, more sparse, pile, extending to base of antennæ. Antennæ short, nearly approximate; the first two segments short, subequal, more or less cylindrical; the third segment longer than the basal segments taken together, very slender, tapering from base toward tip; style very slender, bristle-like, shorter or longer than the third segment. Front but little broader above, on the vertex distinctly depressed, ocellar tubercle large and very prominent. Abdomen above very bare; on the sides and venter usually with longer pile; male genitalia very small, downward directed. Legs slender, rather bristly, the front tibiæ without a terminal claw-like spur, the hind tibiæ toward the tip somewhat stouter; the hind tarsi a trifle shorter than the anterior pairs, and of all, the metatarsi are markedly elongate; in many species the front tarsi and middle tibiæ of the male bear characteristic hair markings which are wanting in the female; pulvilli normal. All the submarginal and posterior cells wide open; the anal cell closed or slightly open.

Type.—Dasypogon manicatus Meigen.

SYNOPSIS OF SPECIES.

1. Scutellum (except sometimes the extreme base) black or blackish 2.
Scutellum and face yellow, abdomen yellow, marked with five black fasciæ, wings pale yellow. . **vespoides.**
2. Abdominal segments 1–4 wholly black 3.
Abdominal segments 3–6 (except sometimes their lateral margins) reddish.... 6.

3 Wings hyaline, the cross-veins and furcations alone sometimes clouded with brown 4
Wings more or less brown, the apex never blackish **ludius.**
Wings with the apical half blackish { **phœnicurus.** **macerinus.**
4 Tibiæ usually black, sometimes varying to reddish { **johnsoni.** **nigripes.**
Tibiæ always reddish 5
5 Bloom of abdomen extending on the base of the segments **senilis.**
Bloom of abdomen confined to the apices of the segments **lautus.**
6 Wings nearly uniformly smoky gray head, first two segments of antennæ, thorax and legs obscure brown **rubidus.**
Wings smoky brown, darkest on the apical half, head, antennæ and thorax, black **patruelis.**

As I have never been able to get together all the species of this genus, I have relied, for the most part, on Mr Coquillett's table of species published in Can Ent , XXV, 20, which, so far as I have used it, has proved satisfactory However, I will supplement this key with one to the males made almost wholly from descriptions, but which I believe will be of considerable help It does not include *vespoides*, as its description does not describe the legs fully enough

SYNOPSIS OF MALES

1 Middle tibiæ with a brush of black hair and bristles on the anterior side 2
Middle tibiæ without such a brush, very pilose species **johnsoni.**
2 Front tarsal segments all densely clothed above with appressed white pile { **lautus.** **ludius.**
Front tarsal segments *not all* densely clothed above with appressed white pile 3
3 Front metatarsi destitute of dense appressed white pile **rubidus.**
Front metatarsi clothed with dense appressed white pile 4
4 Distal half and extreme base of wings deep black rest hyaline abdomen black, the posterior margin of the fifth and the whole of the following segments reddish **phœnicurus.**
Distal half of wing not deep black as above abdomen black or blackish, not as above 5
5 Wings pure hyaline, not at all clouded **senilis.**
Wings more or less tinged with brown or black { **macerinus.** **patruelis.**

Heteropogon johnsoni (Pl X, fig 4)

Anisopogon johnsoni Back, Can Ent , XXXVI, 293, 1904

♂ ♀ —*Length* 10–12 *mm* —Black, head, thorax, scutellum, posterior margins of abdominal segments, venter and legs with dull yellowish-white or whitish pile Pile, except on the posterior margins of the abdominal segments, where it is short, recumbent and often deeper yellow than on the thorax, long, erect, not dense, giving the insect a furry appearance Face, thinly white pruinose, mystax composed of long, dense, black pile on the oral margin, above not as dense, yellowish white, and extending upward to the antennæ on either side of the face in such a way as to leave the middle of the face below the antennæ bare Occiput white pruinose, with long pile, in one male specimen with a few black bristles Beard long and fine palpi small, with black and white pile, proboscis and antennæ black, style of the latter nearly or quite as long as the third segment Thorax in several specimens slightly white pruinose beneath the long pile Abdominal segments finely punctate, the anterior two thirds of each segment with short black pile, not easily noticeable Last two segments of the female polished black, not punctate, genitalia of male small, reddish, with fine pile Coxæ and femora black, with the same long pile of the thorax, in the male there is a small patch of short black pile on the upper distal portion of the middle and hind femora tibiæ and tarsi vary from nearly black to deep testaceous The pile and bristles of the tibiæ moderately long and whitish, the bristles of the hind pair in part black, the middle pair without the brush found in *ludius* or *senilis* The front metatarsi clothed with sordid white, appressed, but not very dense, pile, this same pile is found in less degree on the other metatarsi, but there is usually confined to the basal half, bristles of the remaining tarsal segments, with the exception of one or two on the second segment black Claws black, pulvilli dark brown Wings hyaline, veins yellow

Types —Three pairs of co-types deposited one each in the collections of the Mass Agr'l College, Prof C W Johnson, and the American Ent Soc of Phila Ten paratypes, eight of which are in the collection of the Am Ent Soc, and two in my own collection

Habitat —Colorado, Fort Collins, Col (Sept 12, 1901)

I have placed this species under *Heteropogon* because it does not possess those dense tufts of pile on the sides and venter of the abdominal segments which I consider fully as characteristic of *Pycnopogon* as the shape of the abdomen

Heteropogon lautus.

Heteropogon lautus Loew, Cent., X, 34, 1872.

Anisopogon lautus Williston, Tr. Am. Ent. Soc., XI, 16, 1884.

♂ ♀.—*Length* 9–11.5 *mm.*—Black, the thorax brownish-gray pruinose; the tibiæ and tarsi reddish or reddish-brown. In the male the wings are pure hyaline and the front tarsi are densely clothed above with white pile. In the female the wings are pure hyaline except the extreme base as far as the humeral veinlet, which is black; the transverse veins, and the unions of the veins, are likewise narrowly margined with black.

♂.—Black; the tibiæ and tarsi reddish, the apex of the former and the several segments of the latter toward the apex a little more deeply tinged. Head covered with a dense grayish-white bloom, opaque; the pile white and bristles whitish; but the bristles of the mystax immediately above the oral margin, all the pile of the palpi, and most of that of the antennæ, and indeed the stout bristle which is situated just above the second segment of the antennæ—all black. The whole thorax is obscured by a brownish-gray bloom; the color of the pleuræ and of the humeral angles verging much toward a whitish color, that of the rest of the dorsum and of the scutellum much toward brownish-gray. All the pile of the thorax white, bristles black; on the posterior margin of the dorsum and on the margin of the scutellum, whitish. The first six segments of the abdomen black, polished, with very short pile, the posterior margin and the posterior angles of each segment covered with a grayish-white bloom and with very short pale pile; the last two segments, and the small hypopygium reddish; toward the base, the sides of the abdominal segments are covered with long, white pile. Venter grayish, clothed with long, white pile. Femora above almost wholly covered with short black pile, the rest of the pile white, much longer toward the base of the femora; bristles of the femora mostly black, a few whitish. The tibiæ covered with white pile and armed with black and white bristles, the front tarsi above densely clothed with pure white pile, the middle and hind tarsi with white hair and black bristles. The middle tibiæ are not adorned with the brush of hair and bristles, as it is in some of the other species. Halteres yellowish. Wings wholly purest hyaline, the lower part of the base as far as the axillary veinlet somewhat grayish

Like the male, but the bloom of the front, face, dorsum and scutellum verges into deep brown; the marginal bristles of the scutellum are black; the abdomen almost wholly black, more rarely is absolutely reddish toward the apex; the posterior margins of the several segments scarcely showing traces of a grayish bloom and of pale pile; the front tarsi above are adorned with no dense pure white pile, the lowermost part of the base of the hyaline wings as far as the humeral veinlet, is black, and the transverse veins and junctions of the veins are narrowly shadowed with blackish.

Type.—M. C. Z. The type series consists of two male and two female specimens in good condition.

Habitat.—Texas (type, Belgrage).

The two females mentioned by Dr. W. S. Williston in the second reference I believe to be either *ludius* or *senilis*.

Heteropogon ludius.

Anisopogon ludius Coquillett, Can. Ent., XXV, 20, 1893.

♂ ♀.—Length 12–16 *mm.*—Wholly black; the tibiæ and tarsi varying from pale yellow to dark reddish-brown, white pilose, the front tarsi of the male clothed above with dense appressed white hairs and the middle tibiæ before with a brush of black and white hairs and bristles.

"♂.—Black; the tibiæ and tarsi dark reddish-brown. Face gently convex, white pilose, bristles of lower part black; the first segment of antennæ slightly longer than the second, the third tapering to the tip three times as long as the second, the style slender, seven-eighths as long as the third antennal segment; pile of occiput, thorax, pleuræ, coxæ and venter white; upper side of each front tarsal segment with a dense covering of appressed white hairs. Upper side of middle femora toward its apex with a dense covering of short appressed hairs, which, however, leave a large ellipitical naked space between the apex and the middle; middle tibiæ white pilose in front, and above the middle ornamented with a large patch of appressed black hairs and bristles, which form an inner and an outer fringe; inner side of posterior tibiæ near the tip, and also of the hind metatarsi, densely bright yellow pubescent; wings smoky-brown, lightest at the apex and along the hind margin; all the posterior and the anal cell open

" ♀.—Like the male, except that the front tarsi, middle femora and tibiæ are not ornamented as in the male, and the wings are much lighter, the brown forming a border to some of the veins."

Type.—U. S. N. M., Cat. No. 927. Type series consists of two male and three female specimens.

Habitat.—Los Angeles and San Bernardino Counties, California, and British Columbia.

Notwithstanding Mr. Coquillett's note that "the species is closely related to *senilis* Bigot, but in the latter species the wings are wholly hyaline and the appressed white hair on the front tarsi of the male is confined to the first segment," I am of the opinion that more collecting will prove them identical. My reason for thinking so are that Bigot does not state definitely whether the metatarsi or all the tarsal segments of the front legs are clothed above with appressed white pile, and that the color of the wings is apparently variable.

In 1904 I sent a rather poorly-preserved male specimen to Mr. Coquillett, of which he wrote under date of March 16th, "the specimen is not in the best condition for comparing or studying, but it is apparently identical with my *H. ludius.* The coloring of the wings appears to be variable in the same species of this genus" This specimen had pure hyaline wings, as *senilis* is described to have. There is a pair of Heteropogons at the Brooklyn Institute from South Creek, Beaver Co., Utah, named by Mr. Coquillett "*senilis.*" Both the male and female have the wings pure hyaline, but the male has all the front tarsal segments, instead of the first, clothed above with appressed white pile. The specimen from Florida recorded by Prof. C W Johnson as *senilis* (Proc. Acad. Nat. Sci. Phila., 1895, page 323) is, by comparison, the same as the specimen named for me by Mr. Coquillett as *ludius* If the amount of pile on the front tarsi is variable in its extent, my key to the males will be of little use.

Heteropogon macerinus (Pl X, fig 5)

Dasypogon macerinus Walker, List, II, 356, 1849

Heteropogon gibbus Loew, Cent, VII, 58, 1866

♂ ♀—*Length* 10–12 *mm*—Black, head, thorax excepting the stripes on dorsum and the posterior angles of the first four abdominal segments whitish pruinose, wings hyaline, the costal margin and apical half blackish In the male the front metatarsi with dense appressed white pile, the middle tibiæ with a black brush

♀—Head covered with a whitish or pale yellow bloom, occiput more obscurely covered with white pile and with white and black bristles, pile of front white, bristles of ocellar tubercle black First two segments of the antennæ reddish-brown with black pile, the second segment beneath with a very long black bristle, third segment black, longer than the first two basal segments taken together, tapering to point, style very long, very slender, nearly as long as the basal segments taken together Mystax white or very pale yellow, black on the oral margin, very fine, extending upward to the antennæ Palpi for the most part with black pile, occasionally with white and black pile mixed, beard white Thorax grayish pruinose, the three dorsal stripes broad, black, very much abbreviated behind, the lateral stripes brownish, subinterrupted, humeri and pleuræ mostly reddish-brown In many specimens the whole thorax except the dorsal stripes, is reddish-brown, and the stripes themselves are not black, but more brownish; this coloration is most noticeable in greased specimens in which the bloom has been affected. Pile of the thorax white, that on the dorsum mostly black; all the bristles black, in a few specimens partly white on the posterior callosities. The scutellar bristles, about three on each side of the posterior margin Abdomen black; the lateral margins of all the segments and, sometimes, the extreme posterior margins as well, are brownish; rather bare, covered with very short black pile, on the sides with longer white pile; posterior angles of segments 1–4 whitish or yellowish pruinose. Venter reddish-brown, whitish pruinose, with white pile, longer toward the base, toward the apex, black. Legs brown; apices of the femora, tibiæ and of the tarsal segments, largely black; pile mostly white, on the tips of the tibiæ and on the tarsi black; femora toward the apex with a few bristles, mostly black; tibiæ with many bristles, mostly whitish or yellowish, some black; bristles of tarsi, black. Halteres pale yellow Wings long, hyaline, costal cells and the apical half of the wing blackish; the whole of the discal cell and the fourth and fifth posterior cells toward the base, however, clear; veins black.

♂.—The male does not differ appreciably from the female except in the secondary sexual characters of the legs. The front metatarsi only are clothed above with dense appressed white pile; there is a little white pile on the second segment also, but here it is not noticeable. The middle femora on the outer half above with short black hair in the middle of which is an oval bare area; the middle tibiæ clothed before with dense appressed white pile, and a trifle above the middle, with a brush of black hair and bristles; all the other bristles of the tibiæ, except at very tips, white. The pile of the coxæ, metapleuræ and venter of abdomen is white and longer than in the female, and the blackish cast to the wings is confined to a smaller area at the tip.

Type.—M. C. Z. There are five female specimens in the Loew collection; they are the type of *gibbus*. *Dasypogon macerinus* is in the British Museum.

Habitat.—Trenton Falls, N. J. (type, *macerinus*) ; (type, *gibbus*), Ky.; Lehigh Gap, Pa. (July 16, H. L. Viereck).

This species is at once separated from *lautus and phœnicurus* by the rather broad median velvety black stripe on the thoracic dorsum, which is separated from the similarly colored lateral stripes by narrow light pruinose lines which are always, in good specimens, very distinct. Specimens become greasy and then the velvety blackness of the stripes is lost. Osten Sacken states (Western Diptera, page 310) that he had species from California and Vancouver Island which were not unlike *macerinus*, but certainly different, yet too poorly preserved for describing.

I am here enabled to mention the male for the first time through the kindness of Prof. C. W. Johnson, who has kindly loaned me a specimen. He says that this species seems to be quite common at Lehigh Gap, Penn.

I regret that we must use the specific term *macerinus* in place of *gibbus*. Walker's description, while not as good as Loew's, refers to this insect.

Heteropogon nigripes.

Heteropogon nigripes Jones, Trans Am. Ent Soc., XXXIII, 279, 1907.

"*Length* 9 *mm.*—Near *H. lautus* Loew Head broader than high, front but slightly excavated; front and face white pruinose, covered with long white hair, above the mouth and near the ocellar prominence, black. Face flat, slightly convex below, wide. Antennæ black; first and second joints equal; third slightly longer than the first two together; style slender, about two-thirds the length of the third joint. Thorax black (slightly greased in the specimen at hand), covered with long, light colored pile; pleura whitish pruinose, covered with long white pile; scutellum similar in color to the thorax, but with a brownish tinge, covered with long white pile and a marginal row of weak bristle-like hairs, dark at base and white at apex. Halteres dark brown or black; stem slightly lighter; fan-like row of hairs in front white. Abdomen black, polished; tergum covered with very fine, short, sparse, light colored pile; lateral margins with long white pile; posterior lateral margins of first six segments with a white pruinose spot. Legs black, covered with long light colored pile, weak bristles of tibiæ light colored; pile of tibiæ and tarsi yellowish, shorter and denser than that of the femora Wings hyaline; veins at base of submarginal, first, second, fourth, fifth, posterior and discal cells, clouded with black."

Type.—University of Nebraska. A single female specimen.

Habitat.—Monroe Cañon, Sioux Co., Neb. (L. Bruner).

Mr. Jones states that this species can be separated from *H. lautus* by its entirely black legs, and the difference in the pilosity of the legs. I have never seen this species, but it must very closely resemble *johnsoni* except for its clouded wings.

Heteropogon patruelis.

Anisopogon patruelis Coquillett, Can. Ent., XXV, 21, 1893.

"♂ ♀ —*Length* 13–16 *mm.*—Same as the following description of *rubidus*, with these exceptions:—Head, antennæ, thorax, scutellum and femora except the apex, black; apical third of first abdominal segment and the apical three-fourths of the second segment, reddish in the female but black in the male. Style one and one-fourth times as long as the third antennal segment. Wings smoky-brown, lighter on the base as far as the furcation of the second and third veins; a lighter transverse shade passes through the middle of the discal cell. Front metatarsi of the male densely covered with appressed white hairs above."

Type.—U. S. N. M., Cat. No. 10425. A single male specimen and a single female specimen.

Habitat.—Texas (type, H. K. Morrison).

I have not studied this species.

Heteropogon phœnicurus.

Heteropogon phœnicurus Loew, Cent., X, 33, 1872.

Heteropogon phœnicurus Howard, Insect Book, Pl. XIX, fig. 12.

♂ ♀.—*Length* 9–12 *mm.*—Black; apex of abdomen reddish; the tibiæ and tarsi brown or reddish, the basal half of the wings, excepting the extreme base, hyaline; apex black.

♂.—Black; the posterior margin of the fifth abdominal segment, the whole of the following ones and the hypopygium deep rufous; the tibiæ and tarsi brown, the segment of the latter blackish toward the apex. Front covered with brownish bloom and black pilose. Face densely grayish pruinose in sharp contrast to the brown of the front; the lower part of the mystax wholly black, above mixed with black and whitish pile, the latter toward the oral margin sometimes very pale yellow. Antennæ black; more slender than in many European species and with a longer style Occipital orbits with long black bristles; the whole occiput, mentum and base of proboscis with very long and very dense white pile. Thoracic dorsum subpolished, excepting the three usual very broad vittæ, covered with pale yellowish, sometimes almost whitish, bloom; whole dorsum white pilose except the pile on the humeri and the bristles above the base of the wings, which are black. Pleuræ and scutellum white pruinose, the margin of the latter on each side with a single black, rarely white, bristle. Pile of tergum of abdomen very short, black; thence from the posterior margin of the fifth segment, reddish; on the hypopygium of the male longer and more dull; the lateral margins of the abdomen are clothed with long white or very dilate sordid yellow or whitish pile which greatly decreases toward the tip of the abdomen and changes its pale color to reddish. Venter grayish, clothed with long whitish pile. Femora polished black, with short black pile, both sides of the base with black bristles, but below more broadly clothed with long white pile, in the middle below near the apex with dense black pile. Tibiæ reddish, the extreme apex of all a little darker; the front pair with short white pile and black bristles, except on the posterior side where the bristles are white, middle tibiæ white, pilose before the middle, below marked with a brush of dense black pile and then on both sides black-pilose, armed on the posterior side with white bristles, on the anterior side with black or black and white bristles, all the bristles of the hind tibiæ and the pile for the most part black Tarsi reddish, the extreme apices of the several segments darker, the last segment almost wholly black, the bristles of the tarsi black, of the front metatarsi in part white, the pile of the tarsi black, but that of the front metatarsi above dense and white Halteres yellowish The anterior half of the wings hyaline, the lowermost base as far as the humeral vein, black, the apical half black, the base of the first submarginal cell, the apex of the first basal and of the discal cells and the fourth and fifth at base darkened, the transverse veins enveloped in a deeper black color

♀ —Like the male, but covered with somewhat shorter pile over the whole body, the middle femora below near the apex have no black spines, the middle tibiæ lack the brush of black bristles and pile, and are wholly clothed with white pile, the white pile of the front metatarsi is shorter and much more sparse

Type.—M. C Z Type series consists of two male and one female specimens

Habitat —Texas (type, Belfrage)

The above is a liberal translation from Loew with the insects before me The white pile of the male abdomen is most dense and long on the sides of segments 1–3, and on the venter of the same, from thence on shorter and confined almost exclusively to the venter The posterior angles of segments 2–4, and all the other segments with the same short reddish pile as found on the hypopygium

Heteropogon rubidus.

Anisopogon rubidus Coquillett, Can Ent , XXV, 21, 1893

"♂ ♀ —*Length* 14–17 *mm* —Obscure brown the following parts black the third antennal segment, basal half of style, proboscis, palpi, scutellum except its base, first segment of abdomen, basal half of second, lateral margins of the others, seventh segment and genitalia largely, apex of venter and upper side of each femur, that on the first and second segments of abdomen with a strong bluish tinge, brown of abdomen more reddish than on other parts, thorax irregularly marked with grayish-black Head gray pruinose, the pile yellowish white, face evenly convex, the pile extending nearly to base of antennæ, first segment of antennæ slightly longer than the second, third segment slightly longer than the first two taken together, tapering gradually to the apex, the style two-thirds as long as the third segment. Thorax gray and golden pruinose, the pile short, sparse, mixed black and white; pleuræ gray pruinose, its pile and that of the coxæ white, the fan-like pile in front of the halteres also white. Pile of abdomen sparse, microscopic, light colored; that on the lateral margins and venter whitish. Pile of legs sparse, whitish, that on tarsi and tips of tibiæ largely black. Wings smoky-gray, all posterior cells and the anal cell open.

The male is the same as the female except that the middle femora have each a cluster of black pile at its apex in front and two similar fringe-like clusters, one on the upper, the other on the lower, surface at its last third, and above the middle of each middle tibiæ are two long dense fringes of black pile on its inner and outer sides, connected with each other in front; front metatarsi destitute of appressed white pile."

Type.—U. S. N M., Cat. No. 926. Type seeries consits of four female and one male specimen.

Habitat.—Los Angeles Co., Cal. (type).

I have no specimens of this species.

Heteropogon senilis.

Anisopogon senilis Bigot, Annales, 1878, 423.

♂.—*Length* 13 *mm.*—Translation.—Blackish; antennæ black; face, hair of face, front and occiput grayish; beard white; mystax, hair of palpi and occipito-orbital bristles black. Thorax grayish; pleuræ, trochanters and femora beneath with white pile; venter with pale yellow pile. Abdomen and femora black; tibiæ reddish; middle tibiæ with a black brush, hind tibiæ annulate with black; the middle femora below toward the tip with a dense black tuft of hair; tarsi reddish-brown at apex; wings hyaline.

Dark brownish-black; antennæ black; pile of upper part of the mystax, face and hairs of the occiput, grayish; beard white; pile of palpi, oral margin, some of the bristles of the vertex and occiput, black. Thorax gray with grayish pubescence, the hairs white; long and thick on the pleuræ, coxæ and the outside of the femora. Abdomen black, glabrous above, with long yellowish hair beneath. Femora black, the middle pair with a tuft of short hairs, very compact, black on the outside near the tip; tibiæ tawny, with whitish pile and black bristles, the hind pair black near the middle as well as toward the tip, the middle pair on the front side near the middle with a brush of hairs similar and corresponding to those of the femora; tarsi tawny, brownish toward tip. Halteres pale testaceous. Wings hyaline, veins brownish. Genitalia of male very small.

Type.—Bigot collection.

Habitat.—California (type); Mt. Hood, Oregon, and Colorado (D. W. Coquillett); Florida (C. W. Johnson).

Dr. S. W. Williston has referred this species to *Pycnopogon*, but if Mr. Coquillett's determination is correct, it should remain under *Heteropogon*. There are two specimens at the National Museum. See note under *ludius*.

Heteropogon vespoides.

Anisopogon vespoides Bigot, Annales, 1878, 423.

♂.—*Length* 24 *mm*—Translation.—Black, with yellow markings; antennæ fuscous, brown at base; face yellowish, mystax and beard testaceous; thorax pale yellow; median stripe, two side spots, black; pleuræ black, variegated with yellow; scutellum pale yellow, halteres fuscous; abdomen yellow, the five stripes broad at base black; genitalia tawny; tibiæ tawny; femora above broadly black; wings pale yellow, veins tawny at base.

Varied with black and yellow; the black antennæ brownish at base; mystax, hair of palpi and the beard yellowish; pile of the occiput red; face pale yellow. Thorax yellow, a median band, and on each side two large trapezoidal spots, black; scutellum yellow; sides with varied reflections and blackish sutures, on the posterior margin with some red bristles. Halteres testaceous. Abdomen yellow; five large transverse bands at the base of the segments black. Coxæ black with yellow pile; legs of reddish-yellow; femora on the outside and above blackish; bristles yellow Wings of a very pale yellowish color, veins brown, yellow at base

Type.—Collection of Bigot.

Habitat.—California (type).

I do not believe that this species is known to recent collectors. As no structural characters are given, we rely upon Bigot for its generic position.

PYCNOPOGON.

Pycnopogon Loew, Linnæa Ent., II, 526, 1847.

Pycnopogon Schiner, Fauna Austr , I, 136, 1862

Species with broad hairy bodies. Head broad, not narrowed above, swollen but without gibbosity, the very thick mystax extending up to the antennæ. Antennæ very slender, nearly approximate, first two segments cylindrical, subequal, the third elongate, tapering and bearing distally a long, very slender, tapering style. Front somewhat broader above, on the vertex very much depressed with the ocellar tubercle well projecting. Thorax broad, almost quadrangular, rather arched. Abdomen very broad, flattened, clearly punctate, on the tergum with much shorter pile, on the sides with hair in tufts, on the venter with longer and denser pile. Legs rather stout, with thicker longer hair and bristles intermixed; the metatarsi not much elongated; the pulvilli normal. Middle tibiæ of male sometimes with a brush of bristles and hair on the anterior sides; the fore tibiæ without a terminal claw-like spur. The anterior branch of the bifurcate third longitudinal vein with a supernumerary vein, not always present; fourth posterior cell wide open, narrowed, or closed; the other posterior cells wide open; the anal cell closed on the margin or narrowly open.

Type.—Dasypogon apifornis Loew.

The differences between this genus and *Heteropogon* are very slight. The shape of the head, antennæ and venation are the same, but the abdomen in the typical species is broader, rather shorter and very densely pilose on the sides and venter. Schiner states that the species have somewhat of a "bee-like" appearance and this does seem to be the case with Osten Sacken's *cirrahatus*. The same tibial brush is found in some of the males of this genus as well as in some of those of *Heteropogon*. If Mr. Coquillett's determinations are correct, *senilis* Bigot is a good *Heteropogon*. Mr. Coquillett's *divisus* is an excellent example of this genus, as also is Dr. F. Hermann's *leucostomus*.

Pycnopogon cirrhatus (Pl. X, fig. 8).

Pycnopogon cirrahatus Osten Sacken, Western Dipt., 293, 1877.

? *Pycnopogon cirrhatus* Williston, Trans. Am. Ent. Soc., XI, 15, 1884.

Pycnopogon cirrhatus Jones, Trans. Am. Ent. Soc., XXXIII, 279, 1907 (note).

"♂.—*Length* 8 5 *mm.*—Black; thorax with white hairs; abdomen with recumbent, golden-yellow pile, especially dense on its latter part; femora black; tibiæ red; middle tibiæ before the middle with a tuft of black pile

"Head and face clothed with white pile; some black bristles above the mouth and also on the upper part of the occiput. Thorax black (the dorsum is greasy on my specimen), with long, soft, white pile; the usual bristles black. Halteres lemon-yellow; trichostical pile rather dense, pale yellow. Abdomen black, polished, finely and sparsely punctate; segments, beginning with second, clothed with recumbent, silky, golden-yellow hair, growing gradually more dense on each subsequent segment; this hair is less dense at the bases of segments 2–5; sides and under side (venter) beset with long yellow hair. Femora black, with white pile; tibiæ red, with white pile and black and white bristles; the middle tibiæ on the anterior side, before the middle, are ornamented with a conspicuous tuft of black bristles, projecting on each side; hind tibiæ with a brownish ring a little before the middle; (fore tarsi above clothed with dense white pile, especially on segment 1. —E. A B.). Wings feebly tinged with yellowish-brown on the proximal two-thirds, the rest hyaline; fourth posterior cell coarctate; anal cell slightly open."

Type.—M. C. Z. A single male specimen.

Habitat.—Type locality—"foot-hills of Mariposa County, Cal., on the road to Clark's Ranch, beginning of June."

Prof. C. W. Johnson possesses a female specimen from Los Angeles Co., Cal., which is 11–12 mm. long. The abdomen is more robust and the wings are tinged at the base and along the middle in front, much as in type male. The tibiæ and tarsi are wholly reddish, but as might be expected, there is no brush of black bristles and hair on the middle tibiæ. Prof. Johnson also possesses a male from the same locality, the wings of which are a clear hyaline. There is another specimen at the National Museum, also from California. I do not regard *cirrhatus* a good *Pycnopogon;* it agrees more closely with *Heteropogon.*

Mr. P. R. Jones (loc. cit.) states that two males from War Bonnet Cañon, Sioux Co., Neb., answer the description in all respects except that the tip of the abdomen is red and the specimens are larger, being about 12 mm. in length.

STICHOPOGON.

Stichopogon Loew, Linnæa Ent., II, 499, 1847.
Stichopogon Schiner, Fauna Austr , I, 128, 1862.

Elongate species of from very small to medium size, and, for the most part, very bare; vertex extraordinarily widened (Pl. IV, fig. 7), evenly, but not deeply depressed, front rounded and hollowed out, saddle-shaped; ocellar tubercle but little projecting. Face short, without protuberance except at oral margin, of moderate breadth, and narrowed above; bristles or pile of mystax mostly confined to a dense row on the dome-shaped oral margin, but sometimes extending upward on the face. Eyes swollen in front, the fore part with much larger facets; the facial and frontal orbits forming a distinct angle with each other. Antennæ (Pl. III, fig. 9) short, approximate, situated midway between the oral margin and the vertex: first two segments short, subequal; third, elongate, tapering, over one and one-half times the length of the first two taken together; style, distinct, a little less in length than the first two segments and composed of a long cylindrical basal segment, and a short bristle-like terminal appendage. Thoracic dorsum somewhat flattened, usually with but two or three distinct bristles on each side; one immediately before the transverse suture, and one or two post alar. Trichostical pile or bristles present. Abdomen rather elongate, flattened, with bristles on the sides of the first segments; male genitalia extremely small and often retracted within the last segment. Legs moderately robust, the femora sometimes quite robust and swollen; the anterior tibiæ without a terminal claw-like spur. Wings normal; the submarginal and posterior cells wide open, the anal cell closed a short distance before the margin, the fourth posterior cell petiolate, sessile, or open at its base.

Type.—Dasypogon elegantulus Meigen.

SYNOPSIS OF SPECIES.

1. Scutellum with well-developed pile or bristles . 2.
Scutellum without noticeable pile or bristles 3
2. Head and thorax blackish; abdomen and legs sordid yellow; *length* 3 *mm* **fragilis.**
Wholly black; everywhere silvery-white pruinose; *length* 6–8 *mm.* **argenteus,**
3 Thoracic dorsum with anteriorly dilated geminate brown stripe, abdomen reddish. **abdominalis.**
Thoracic dorsum without a distinct geminate stripe; abdomen black, trifasciate with white . **trifasciatus.**

Stichopogon abdominalis n. sp.

♂ ♀.—*Length* ♂, 6 7–7.5 *mm.;* ♀, 8 *mm.*—Head and thorax black; wholly grayish-white pruinose except two larger spots on the vertex confluent with the orbits and a moderately wide, anteriorly dilated, geminate stripe on the dorsum which are rich velvety brown Abdomen reddish-yellow, the tergum where not covered with whitish bloom, a rich reddish-brown Wings hyaline, submarginal and posterior cells open, the fourth posterior at base petiolate in varying degree

Antennæ normal, black, covered with whitish bloom Mystax composed of white bristles confined to the oral margin, front with noticeable pile occipital bristles white, as in *trifasciatus*, forming a row behind the vertex, beard white and very scanty The median geminate stripe of thoracic dorsum narrowly divided by a fine line of white bloom, abbreviated anteriorly but posteriorly the two portions separate and becoming more narrow, extend to the scutellum Microscopic hair of dorsum black, leaving the same two bare areas behind the transverse suture as in *trifasciatus* two well developed bristles on each side, one presutural, the other on the posterior callosity Pleuræ without noticeable pile, trichostical bristles white Scutellum white pruinose, without long bristles or pile Halteres white Abdomen a rich reddish brown above, the anterior and posterior margins of segments 1–4 narrowly white pruinose, the anterior margins of the segments 3–4 much more prominently so tip of abdomen, venter and the sides of segments 1–4, broadly, of the remaining segments, slightly, whitish pruinose, tergum with microscopic black and white pile, the bristles on the sides of segment 1 white Legs black, wholly, but not densely, white pruinose, the trochanters tibiæ and tarsi for the most part reddish, claws black reddish at base, pulvilli sordid

The female differs from the male in that the tergum of the abdomen is darker and all the segments of the abdomen broadly whitish pruinose on the sides, this bloom extending narrowly upward onto the anterior border of each segment

Type—Type series consists of three males and one female all of which are at the American Museum, except one male co-type, which is in the collection of the Massachusetts Agricultural College

Habitat—Gotha, Fla (March, 1896, W M Wheeler), Winter Park and Orlando, Fla (April–July, E A Back)

This is somewhat smaller species than *trifasciatus* and can be easily separated from it by the coloration of the abdomen and the anteriorly dilated geminate thoracic stripe It more nearly agrees with the variety of *trifasciatus* mentioned from lower California and Kansas, but is distinct It is very common in the vicinity of Orlando, Florida, during the last of April and in May, June and July, frequenting sandy spots, especially in and about gardens

Stichopogon argenteus.

Dasypogon argenteus Say, Jour. Acad. Sci. Phila., III, 51, 1822; Compl. Works, II, 65.

Dasypogon argenteus Wiedemann, Auss. Zw., I, 409, 1828.

♂ ♀.—*Length* 6–8.5 *mm.*—Black, but wholly silvery-white pruinose; pile and weak bristles entirely white. This is a smaller insect than *trifasciatus* and much more pilose. The mystax is more abundant and extends upward somewhat on the face; the pile on the basal segments of the black antennæ and along the frontal orbits is very fine. Occipital bristles of *trifasciatus* are here reduced to fine hair and the beard is more abundant and longer in proportion. Palpi and proboscis black. Dorsum and pleuræ of thorax with fine pile much longer than that of *trifasciatus;* the presutural and postalar bristles reduced to hair and sometimes absent; scutellum with a fringe of fine long hair. Abdomen immaculate, with fine pile; particularly noticeable on the lateral margins of the segments. Legs wholly white pruinose with fine bristles and silky white pile; claws black; pulvilli sordid white. Wings pure hyaline, with violaceus reflections; fourth posterior cell decidedly petiolate at base. All the submarginal and posterior cells open; anal cell closed before the margin.

Type.—Lost.

Habitat.—Atlantic States; not rare on seabeaches; Avalon, N. J. (July 29, C. W. Johnson); N. J. (Aug. 15 and 27, E. Daecke); Lake Frost, Ill. (J. G. Needham); Los Angeles Co., Cal. (D. W. Coquillett).

Prof. C. W. Johnson, of whom I have received specimens of this species, says that he has taken specimens in goodly numbers on the sandy stretches of New Jersey. I have also seen it in sandy places at Bedford, Mass.

Stichopogon fragilis n. sp.

♀.—*Length about* 3 *mm.*—Head and thorax blackish, everywhere thinly dusted with a grayish bloom, which on the front is more brownish; abdomen and legs sordid pale yellow except the last tarsal segment, which is blackish; wings pure hyaline, in certain light slightly whitish, violescent; all five posterior cells present and wide open; anal cell closed and slightly petiolate; halteres cream-colored.

In structure like the larger species, but the third antennal segment is a little more swollen at the base. Mystax white, confined to the oral margin; the sparse weak bristles of the occiput white; dorsum of thorax with scant, short white pile and longer white bristles, one on either side before the transverse suture and two upon the posterior callosities; scutellum with a few similar bristles on its posterior margin; trichostical bristles long and fine. Pile of abdomen sparse, white. Legs, including the coxæ, thinly whitish pruinose with white hair and bristle.

Type.—Am. Ent. Soc. of Phila. A single female.

Habitat.—Alamagorda, N. M. (April 24, '02, H. L. Viereck).

This is one of the smallest Asilids known to me. It seems out of place beside *trifasciatus*, but is about the size of *tener* and *barbistrellus* of Europe, specimens of which I have for comparison.

Stichopogon trifasciatus (Pl. IV, fig. 9; Pl. X, fig. 7).

Dasypogon trifasciatus Say, Jour. Acad. Sci. Phila., III, 51, 1822: Compl. Works, II, 64.

Dasypogon candidus Macquart, Dipt. Exot., Suppl., I, 67, 1846.

Thereva plagiata Harris, Cat. Ins. Mass. (mss. name).

Thereva plagiata Walker, List, I, 223, 1848.

Dasypogon fasciventris Macquart, Dipt. Exot., Suppl. IV, 69; Pl. VI, fig. 13, 1850.

Dasypogon gelascens Walker, Trans. Ent. Soc. of London, n. s., V, 277.

Dasypogon candidus Bellardi, Saggio, II, 78, 1861.

Stichopogon trifasciatus Williston, Trans. Am. Ent. Soc., XIII, 289, 1886.

Stichopogon trifasciatus Townsend, Proc. Cal. Acad. Sci., IV, 598.

Stichopogon trifasciatus Jones, Trans. Am. Ent. Soc., XXXIII, 279, 1907 (locality note).

♂ ♀.—*Length* 9.5–14.5 *mm.*—Grayish-white pruinose; the tergum of abdomen velvety black, trifasciate with white. Face, front and occiput, silvery-white pruinose; the front often being grayish-brown pruinose with a deep brown spot close to each orbit and with the orbits broadly clothed with fine white pile. Mystax composed of a row of sordid white bristles on the oral margin; vibrissæ very slight, hardly perceptible; occipital bristles whitish, short, stout, well separated, and arranged in a row just behind the vertex. Posterior orbits of eyes below with fine silky white pile forming a rather scant beard. Antennæ black, whitish pruinose. Thorax wholly grayish-white pruinose, 'the dorsum with microscopic black hair which is lacking on a triangular spot on each side just behind the transverse suture and before the posterior callosities. One presutural bristle just above the dorsopleural suture and one postalar on the posterior callosity on each side are the only bristles on the dorsum. Scutellum with a very fine fringe of microscopic pile. Pleuræ nearly bare, the mesopleuræ and the sides of the prothorax with slight white pile; trichostical bristles long, slender, white. Halteres white. Abdomen whitish pruinose, with the exception of the base of the first segment, a large disc on segments 2 and 3 reaching nearly to the anterior and posterior borders, but not over the sides, and segments 5, 6 and 7 above, velvety black. In the female the seventh segment is usually whitish pruinose, while the posterior portion of the fourth is also velvety black; thus the tergum presents a trifasciate appearance Venter of both sexes wholly grayish-white pruinose. Abdomen apparently bare, with fine microscopic pile and longer pile and bristles on the sides of segment 1. Legs wholly grayish-white pruinose with microscopic hair; the femora stout, swollen; the front and middle pairs with bristles only at their tips, the hind pair with a row before and behind; bristles of femora and tibiæ white; of the tarsi black and white. Claws black; pulvilli whitish. Wings blackish hyaline; all the submarginal and posterior cells open, the anal cell closed before the margins, the fourth posterior cell sessile or open at base.

Type.—Say's type is lost.

Habitat.—Chicopee (July 10-26, F. Knab) and West Springfield (June 28, 1896, F. Knab), Mass.; Conn.; North Woodbury, N. J. (Aug. 1, 1901, C. W. Johnson); Lehigh Gap, Pa. (June 28, 1901, C. W. Johnson); Penington Gap, Va. (Osten Sacken); N. C.; Glen, Sioux Co., Neb. (P. R. Jones); Clark Co., Ks. (June, 1962 ft., F. H. Snow); So. Cal.; N. M.; Mexico.

This is rather a common species inhabiting sandy localities. The duskiness of the wings is variable, sometimes wholly lacking. Variable also is the amount and extent of the white bloom on the tergum of abdomen, although the trifasciate appearance is usually maintained. Two specimens from Kansas, belonging to Prof. F. H. Snow, are somewhat testaceous in color and the second, third, fifth and sixth abdominal segments are velvety opaque black except the narrow laterally widening anterior borders which are covered with the same silvery white bloom as the rest of the abdomen. These thus agree with four specimens from lower California which Prof. C. H. T. Townsend mentions. This is doubtless a variety. Dr. S. W. Williston states that he has seen typical specimens of *trifasciatus* from New England, Kansas, and lower California.

WILLISTONINA n. gen.

? *Habropogon* Williston, Trans. Am. Ent. Soc , XI, 10, 1884.

"In structure, except the head, throughout like species of *Stenopogon*, but less pilose. Head considerably broader than high, but scarcely as wide as the thorax. Face very narrow, the eyes separated by an extremely narrow interval from the antennæ; their inner margins above and below gently divergent, so that the distance between the angles below is a little greater than that above. Face in profile gently concave from antennæ to oral margin, nearly perpendicular, wholly bare, except a thin short row of bristles on the oral margin, which is projecting as in species of *Stichopogon*, *Deromyia*, and *Saropogon;* front only gently excavated, widened above. Antennæ (Pl. IV, fig. 5) short, first two segments of equal length, third a little longer than the first two taken together, broad, scarcely more than twice as long as wide, obtusely pointed at the tip and with a very small, almost microscopic style; beard short and thin. Thorax bare, except with very minute hairs, and moderately strong, no abundant bristles on the posterior portion; scutellum with four bristles. Abdomen slender, elongate, cylindrical, broad at the base. Fore and middle femora with two posterior preapical bristles, and the posterior femora with an anterior row of bristles. Fourth posterior cell nearly closed." Fore tibiæ without a terminal claw-like spur.

Type.—Habropogon bilineatus Williston.

In a recent exchange of insects with Dr. F. Hermann of Germany, I received a specimen of *Habropogon longiventris* Loew, and knowing that Dr. Williston of the University of Chicago, had described (loc. cit. above) a new species which he referred doubtfully to *Habropogon*, I took the liberty of sending him my specimen for comparison. Although his type was at the University of Kansas, he wrote in reply concerning the European *Habropogon* "it is generically very distinct from my *Habropogon bilineatus* in the structure of the face especially. I fear that the latter will require a new generic name. *H. bilineatus* is nearest to *Stichopogon* in structure of head, but differs chiefly in the front and the antennæ." Dr.

Snow has kindly loaned me the type and I find that Dr. Williston is quite right, and that there is little to add to his original generic description found above. The tarsal segments are rather stouter than those of *Stenopogon*, and in addition to the already mentioned preapical bristles there is a single bristle on the upper anterior side of the middle femora near the middle.

I have named this genus in honor of Dr. Williston, to whom belongs the credit for its discovery, and whose description I have compared with the type species and found entirely satisfactory.

Willistonina bilineatus (Pl IV, fig. 5; Pl. VII, fig. 3).

? *Habropogon bilineatus* Williston, Trans. Am. Ent. Soc., XI, II, 1884; Pl. 1, fig. 8.

"♀.—*Length* 15 *mm., of wings* 9 *mm* —Black, gray pruinose; mystax white; dorsum of thorax yellowish-gray, with two slender opaque black stripes; abdominal segments 1–5 with red borders; under side of all the femora and base of tibiæ red.

"Face and mystax white, the former opaque; front a little yellowish-gray, the few short bristles black Antennæ and proboscis both short, black. Dorsum of thorax gray with a yellowish or brownish cast; the ground color of humeri, posterior callosities and scutellum appears to be yellowish-red; in the middle two slender narrowly separated, but very distinct, opaque black stripes, obsolete on posterior part; bristles wholly black. The ground color of the pleuræ apparently in large part reddish, but concealed beneath a dense, very light colored bloom, which also covers the coxæ Abdomen black, rather thinly yellowish-gray pruinose, the terminal segments more polished, the sides and posterior margins of the first four segments and the sides of the fifth red; the pile is very short; fore and middle coxæ thickly clothed with white pile. Legs black; the under side of all the femora broadly red, the base of the posterior tibiæ and the four anterior tibiæ, except their tips, red, or yellowish-red. Wings nearly hyaline, veins black"

Type.—University of Kansas. A single female specimen.

Habitat.—Northern California (O. T. Baron).

There is almost nothing to add to the above description. The bristles on the dorsum of thorax are arranged as follows: a row extending from the lateral margin before the transverse suture upward and backward over the base of the wing, three on each posterior callosity, two on each side of the scutellar margin, and two rows of shorter bristles on the posterior portion of the dorsum, well outside of and parallel to the median stripe.

So far as I know this is the only specimen of this species recorded. Both antennæ had lost the third segment and style before being sent to me for study.

CALLINICUS.

Callinicus Loew, Cent., X, 32, 1872.

Callinicus is close to *Deromyia* in form of body, but is easily separated from it by the absence of the tibial spurs. Head moderately broad, face broad, the whole slightly convex; mystax of stiff hairs extending up to the antennæ, longer near the oral margin. Antennæ of moderate length, not approximate, the basal segments short, cylindrical, the first stouter and a little longer than the second, both well clothed with bristles and hair; third segment longer than the first two taken together, of nearly equal width throughout; style short, distinct, stout at base, tapering to a point, apparently two-jointed. Thorax moderately convex, with short hair on the dorsum and with well-developed bristles on the posterior margin of the scutellum, on the posterior callosities, and forming a double row over the base of the wing; there are also a varying number of scattered shorter bristles on the dorsum before the scutellum. Abdomen stout, moderately convex, toward the tip but little attenuated. Legs rather long, strong, lightly pilose; the hind tibiæ toward the apex not thicker. The fore femora on the hind side above, the middle pair on the anterior side and again on the upper posterior side at the tip, and the hind pair on the anterior side above and at tip, with scattering bristles; the tibiæ and tarsi with bristles as usual; the terminal bristles of the middle tibiæ on the inner side are directed inward, while in all the other genera of the Dasypogoninæ except *Chrysoceria*, they are directed more downward; claws well developed, pulvilli normal. All the submarginal and posterior cells wide open; the wings when folded nearly equaling the abdomen in length.

Type.—Callinicus calcaneus Loew.

Callinicus calcaneus (Pl. VI, fig. 2).

Callinicus calcaneus Loew, Cent., X, 32, 1872.
Callinicus calcaneus Osten Sacken, Western Diptera, 291, 1877.
Dasypogon bilimatum Bigot, Annales, 1878, 411.

♂ ♀.—*Length* 13.5–19 *mm.*—Reddish-brown, polished; bloom of head, humeri and pleuræ, deep golden; thoracic stripes black, legs wholly yellowish-red; wings dark yellowish-brown with purplish reflections; pile and bristles of entire body golden or reddish.

Reddish; the thorax and abdomen of a deep reddish-brown; the pleuræ even darker. Head everywhere, except on ocellar tubercle, thickly deep golden pruinose; basal segments of the antennæ reddish; the third segment black, sometimes reddish at base below; style black Proboscis and palpi black, the latter well haired. The thoracic stripes black, somewhat obscured by a grayish bloom; the median stripe narrowly bisected by a line of short golden hair; the lateral stripes greatly abbreviated anteriorly and separated from the median stripe by a narrow line of pale ground color and a row of short hairs; the stripes themselves are bare. Humeri densely golden pruinose, the lateral margins of the dorsum more obscurely so; metanotum, and to some extent the pleuræ, blackish, but densely golden pruinose. Base of the first abdominal segment black; the posterior margins of the remaining segments for the most part narrowly black or blackish, the lateral margins more broadly so; posterior angles of the first segment rich golden pruinose, those of the second, third and fourth segments whitish pruinose. Venter polished red, the several segments black on extreme distal margin, and on the base with a pale pruinose fascia, sometimes not in evidence. Legs wholly yellowish-red; the hind metatarsi variable, concave on the inner side, on the outer side convex, this effect being strengthened by the arrangement of the hair; claws black; yellow at base Pile of body short, on the thoracic dorsum and abdomen quite so, wholly golden; the bristles of the head, thorax and scutellum verging toward vulpinous; pleuræ with a varying amount of short pile; trichostical hair long. Wings brownish, toward the costa and axillary cell sordid yellow; veins blackish, the costa and subcosta brown; the veins bordered with black in varying degrees; wings in certain lights with deep purplish reflections.

Type.—M. C. Z. Two male and seven female specimens.

Habitat.—Cal.; Cisco (June, elev. 5,000 ft.), San Rafael (Marin Co., May 27, O. Sacken), Cal. Not rare in California.

CHRYSOCERIA.

Chrysoceria Williston, Jour. N. Y. Ent. Soc., XV, 1, 1907.
Chrysoceria Williston, Manual, 1907.

Species resembling *Callinicus* as regards general shape of head and wings, and in the possession by the middle tibiæ of two spines situated at the tip on the inner side and directed inward at a distinct angle, but the abdomen is shorter, of nearly equal width throughout and more cylindrical.

Head a trifle broader in proportion than in *Callinicus;* face very broad, of nearly equal width throughout, without protuberance, somewhat swollen, distinctly visible in profile, everywhere clothed with sparse, short hair, on the oral margin with longer but not dense weak bristles. First two segments of antennæ short, the second a trifle shorter than the first, the third longer than the first two taken together, of nearly uniform width, tapering somewhat toward tip; style short, thick, tapering, two-jointed, the first segment very short, "collar-like," the second longer and bearing a minute distal spine. Basal segments of antennæ with bristly hair above and below. Front subequal in width to the face, not noticeably widened above, the vertex distinctly depressed, ocellar tubercle rather large, and bearing bristles. Thorax moderately well arched, with rather prominent bristles, especially on the posterior portion of the dorsum; on the anterior portion they are much shorter and arranged in an indefinite line on either side of the median stripe Scutellum with two or three well-developed bristles on either side of the posterior margin. Abdomen elongate, but shorter in proportion than in *Callinicus*, more cylindrical, of nearly equal width throughout in the male, in the female, slightly tapering toward the tip; in both nearly bare; male genitalia very small, somewhat resembling those of *Ceraturgus* or *Dizonias;* female ovipositor with a circlet of spines. Legs moderately stout, the front tibiæ *not armed at tip with a true terminal claw as found in Deromyia*, but with one or two straight stout spines accompanied by several other slightly weaker ones; the middle tibiæ at tip on the inner side armed with two spines projecting *inward at a distinct angle;* hind metatarsi proportionately quite long; pulvilli normal. All the submarginal and posterior cells widely open, the anal cell narrowly so.

Type.—Laparus ? pictitarsis Bigot.

Chrysoceria pictitarsis (Pl. VI, fig. 6.)

Laparus ? pictitarsis Bigot, Annales, 1878, 417.

Laparsus ? pictitarsis Williston, Trans. Am. Ent. Soc., XI, 25, 1884.

Chrysoceria pictitarsis Williston, Jour. N. Y. Ent. Soc., XI, 1, 1907.

♂ ♀.—*Length* 10–13 *mm.*—Black; head, thorax and abdomen almost wholly densely golden pruinose, except two median stripes and two large lateral spots on either side of the thoracic dorsum and the basal portion of the abdominal segments except the first, which are black. Legs yellow; the femero-tibial articulations above, tips of all the tibiæ and of the tarsal segments blackish; wings hyaline, tinged with yellow.

Antennæ, palpi and proboscis black, and clothed with the same golden pile and hair as found upon the face, front, occiput and thorax; occipito-orbital bristles numerous, short, stout; the hairs on the anterior portion of the thorax short and bristly; the bristles as in generic description; pleuræ with fine, sparse pile upon the meso- and sternopleuræ, and with longer trichostical hair. The two median black stripes on the thoracic dorsum are will separated by golden bloom, and greatly abbreviated behind; the two large black spots on either side are distinctly separated by golden bloom along the transverse suture Scutellum golden pruinose, with two or three bristles on either side of the, posterior margin. Abdomen both above and on venter wholly and densely golden pruinose except the last and sometimes the penultimate segment, which is polished black; also the bases of all the other segments excepting the first, more or less polished black; this polished black is greater in extent upon the second and third segments, but can be noticed on all the others, sometimes only as a line (this depends somewhat on how the abdomen is held); on all the segments the black area is narrow on the middle of the tergum, but widens posteriorly on the sides, so that it is in some specimens very prominent. Male genitalia polished black, with fine golden pile. Legs yellow; the coxæ, femero-tibial articulations above, tips of all the tibiæ and metatarsi, and the greater part of the remaining tarsal segments black; coxæ golden pruinose; bristles and hair of legs golden, those on the distal tarsal segments black; the spines on the tip of the front and middle tibiæ black. Wings hyaline, tinged with yellow, a little deeper colored along the costa toward the base; veins brown; venation normal.

Type.—Bigot collection.

Habitat.—California (type); Los Angeles Co., Cal. (D. W. Coquillett); near Lander, Wyo. (500 to 8,000 ft. elev., Sept., Roy Moodie).

The two specimens, a male and a female, collected by Mr. Coquillett are at the National Museum. The Wyoming specimen is a female in the possession of Dr. Williston; it is somewhat larger than the specimens taken by Mr. Coquillett, and has a crushed and greased thorax; its femora are black instead of yellow, and the hind pair are a trifle more bristly. However, the abdomen is the same except that the last two segments instead of the last segment, are polished black, and the polished black areas at the base of the segments are larger; the spines at the tips of the front and the middle tibiæ are the same. Were several more specimens taken like the Wyoming one, and showed no variation, I should be inclined to believe them a new species.

I believe that Monsieur Bigot was quite right in placing *pictitarsis* doubtfully under *Laparus* Loew, and that Dr. Williston is wholly right in considering it as representing a new genus. Loew, in his *Bemerkungen uber die Familie der Asiliden*, thus characterizes *Laparus* (now *Neoloparus* Williston), "da sie in der Korpergestat und vor allem im Flugelgeader den *Dioctrien* sehr nahe steht, wahrend sie sich freilich im Baue der Fuhler von ihnen wieder sehr wesentlich unterscheidet." Of his typical species *Laparus tabidus*, from Brazil, Loew writes, "Kopf wie bei einer Dioctria; Gesicht sehr breit und flach; die Fuhler stehen weder auf einem Hocker noch auf einem Wulst; die beiden ersten Gleider kurz, von gleicher Lange; das 3te Glied gestreckt, eiformig, am Ende mit einem ganz kurzen Griffel, dessen Grundglied napfformig ist und in seiner Endvertiefung das kaum bemerkbare griffelfornige Endglied tragt." And of the anterior tibiæ, "mit einem gekrummten Enddorn, welcher sich an einem Hocker anleght, der sich unten .an der Basis des ten Fussgliedes findet." As Dr. Williston says, there is no terminal claw-like spur at the end of the anterior tibiæ in *pictitarsis*, and that this fact was the source of Monsieur Bigot's doubt I have no question for, in describing the tibial spine of his specimen, he placed "*a peu pres droit*" in italics.

SAROPOGON.

Sarapogon Loew, Linnæa Ent., 439, 1847.
Saropogon Loew, Bemerk. uber Asil., 5, 1851.
Saropogon Schiner, Fauna Austr., I, 125, 1862.
Saropogon Schiner, Verh. Zool.-Bot. Ges., XVI, 653, 1866.

Comparatively naked species. Head obviously broader than high; face bare, in profile slightly convex above, rather concave below, oral margin most prominent and bearing a row of stout bristles forming the mystax; face and front quite broad, the face scarcely narrowed above, the front hardly depressed, ocellar tubercle large. Antennæ well separated, segments 1 and 2 cylindrical, subequal, clothed with stiff hair, segment 3 longer than the first two taken together and usually with some short stiff hair above, and bearing a short thickened style of varying structure. Thorax moderately arched, dorsum with short stiff hair, and on the sides, posterior callosities, and before the scutellum usually with well-developed bristles; the scutellum, in all the following species except *abbreviatus*, with two or four well-developed bristles. Abdomen long, moderately robust, somewhat flattened in the female, more cylindrical in the male. Legs stout, hind femora not thickened, the front tibiæ with a prominent claw-like spur. First posterior cell of wing wide open, closed, or closed and petiolate; the fourth posterior open, or closed, but never, where closed, with a long peduncle.

Dr. Williston in Trans. Am. Ent. Soc., XII, p. 290, says, in speaking of *Saropogon* and *Deromyia*, that "there is absolutely no discovered character that will separate these genera. Still the multitude of species of *Deromyia* renders the retention of *Saropogon* imperative." This is true; the difference between the genera can be felt better than described. The species of *Saropogon* as a whole, have a proportionately much stouter abdomen; *luteus* is somewhat of an exception, being in this respect more like the *Deromyia* type. While the fourth posterior cell of *Saropogon* species is variable, that of *Deromyia* species is not, and in the latter is usually closed relatively quite distant from the margin, while in the former it is more often open, but when closed, with only a slight peduncle.

The tendency where the male is black, for the female to be reddish is quite marked in this genus, and furnishes interesting study, and in my own case, has led to the uniting of *adustus* and *combustus*, and *abbreviatus* and *bicolor*.

SYNOPSIS OF SPECIES

1. Scutellar bristles normal in length 2
Scutellar bristles reduced to denticles **abbreviatus.**
2. Abdomen black 3
Abdomen reddish 4
3. Bristles of coxæ white, femora with reddish stripe before **dispar.**
Bristles of coxæ black, femora wholly black **combustus.**
4. Venter black 5
Venter reddish 7
5 Wings brown or blackish 6
Wings hyaline **coquillettii.**
6 All the femora with large black vittæ above **dispar.**
All the femora without black vittæ above, usually wholly reddish **combustus.**
7 Wings hyaline; fuscous along veins **luteus.**
Wings entirely hyaline 8
8. Dorsum of thorax densely grayish pruinose, length 10 *mm* **semiustus.**
Dorsum of thorax yellowish-gray pruinose with three brown stripes, length 13 *mm* **hyalinus.**

Saropogon abbreviatus.

Saropogon abbreviatus Johnson, Psyche, X, 113, 1903
‖ *Saropogon bicolor* Johnson, Psyche, X, 113, 1903

♂ ♀ —*Length* 9–12 *mm* —Distinguished from all species here included by its rather short stout abdomen, the minute pustules bearing very short hairs upon the dorsum of the thorax and abdomen, and by denticles (about six) instead of long bristles upon the scutellar margin. The male is black; the female, as far as known, has the abdomen reddish.

♂.—Wholly black; face, front, occiput and the upper portion of the mesopleuræ and the dorsum of the thorax silvery white pruinose, the bloom of the dorsum, except on the humeri, lateral margins and scutellum, very thin and showing a trace of a faint median darker stripe; remainder of pleuræ, except a brownish pruinose area above the hind coxæ, polished. Antennæ wholly black; segment 3 seems a little more slender than in *combustus* or *dispar* Thoracic dorsum and tergum of abdomen thickly covered with minute pustules bearing short stiff hairs which give the entire body, when viewed from above, a punctate appearance. The bristles before the transverse suture of the thoracic dorsum much shorter than in the other species, upon the posterior callosities are very much reduced, and upon the posterior margin of the scutellum there are about six reduced to mere denticles; the remainder of the scutellum above bears the same short bristly hair as the thoracic dorsum. Halteres yellowish. Abdomen rather short and stout. Legs black. Mystax and short bristles and hair of entire body and legs black. Wings brown or black; veins black, the fourth posterior cell narrowly open.

♀.—Like the male in body structure and presence of bristly pustules, but as in *combustus* and *dispar*, the female is more reddish. Head, black; mystax and pubescence of face yellow; antennæ reddish, becoming dark brown toward the tip; proboscis black, slightly brownish at the base. Thorax black as in the male, but the lateral margins of the scutellum and the metanotum are brownish and the bloom is yellowish, not silvery-white. The first and seventh segments of abdomen black, the others red, with the lateral margins black; the posterior margin of the second segment is narrowly black, on the other segments the black of the lateral margins extends upward but slightly on the posterior margin. Halteres and legs reddish; coxæ, tips of hind femora and the bases of the tibiæ, with a very narrow black ring, the last segment of the front and middle tarsi also black; spines of tibiæ few in number, mostly white, those on the tarsi numerous and black. Wings light brownish, the veins on the basal half bright yellow; the fourth posterior cell closed and slightly petiolate or narrowly open.

Type.—The unique type of both *bicolor* and *abbreviatus* are in the collection of Prof. C. W. Johnson, Curator of the Boston Society of Natural History.

Habitat.—Near San Antonio (type), and Cotulla (J. C. Crawford, May 5, 1905), Texas. Mr. Crawford captured his specimen on *Coreopsis cardaminefolia.*

Because of the denticles of the scutellum, the bristly pustules and the rather "chunky" build, this species seems rather out of place with the other forms now included in this genus from the United States. Prof. Johnson hesitated in placing it in this genus and did so only after showing specimens to Mr. Coquillett, who at that time thought that the species did not possess sufficient characters to warrant its separation from *Sarapogon*. Mr. Coquillett, however, now is inclined to believe that it should be placed in a new genus. I agreed with him at first, but recently have seen, through the kindness of

Dr. Williston, his specimen of his Mexican *pulcherrimus*, and through that of Dr. Hermann of Germany, Loew's *notatus*, in both of which there are *no* bristles or denticles on the scutellar margin, and the abdomen of *pulcherrimus* is quite similar in shape to that of *abbreviatus*.

There are in the National Museum specimens of *abbreviatus* and *bicolor* pinned in *coitu*, thus proving that they are the same species. This is what one might expect in this genus (see notes on *combustus* and *dispar*.)

Prof. Johnson's *bicolor* is a female, not a male, as published. The specific name *bicolor* was used by Jaenicke in 1867 in his Neue Exotische Dipteren.

Saropogon combustus.

Saropogon combustus Loew, Berl Ent. Zeit., 1874, 373.
Saropogon adustus Loew, Berl Ent Zeit , 1874, 375.
Saropogon combustus Williston, Tr. Am Ent Soc , XI, 23, 1884.
Saropogon adustus Jones, Trans. Am. Ent. Soc., XXXIII, 279, 1907 (doubtful determination from Nebr.).
Saropogon dustus Howard, Insect Book, 1902, Pl. XIX, fig. 8.

♂ ♀.—*Length* 13.5–15 *mm.*—Male.—Black; legs and wings of the same color; head and dorsum pale golden pruinose; pleuræ reddish-brown pruinose; mystax white; coxæ black with black bristles. *Female.*—Head and abdomen reddish; segments 1–5 of latter black on the sides and with the posterior lateral margins whitish pruinose; wings yellowish.

♂.—Black; face, front, occiput, dorsum and scutellum light golden pruinose; the dorsum when viewed from before, nearly uniformly pruinose, when viewed from above, showing indistinct traces of a dark median geminate stripe and two lateral stripes greatly abbreviated anteriorly; pleuræ and coxæ dark brown pruinose. Mystax white; bristles of antennæ, frontal orbits, ocellar tubercle, upper occiput and on the thoracic dorsum and scutellum yellowish; the fine hair of the thoracic dorsum of same color, finer and longer than in *dispar;* clothing of rest of occiput, palpi, proboscis, prothorax, hypopleuræ, coxæ and abdomen wholly black, polished, the pile being very short on the tergum of abdomen, longer and thicker on the sides and venter. Hypopygium black. Legs black; all the bristles whitish except a few on the hind tibiæ; pile of femora black, short on the upper side, longer beneath; front and middle tibiæ appear less black than the hind pair, due to the nearly uniform paleness of their hairs; the short, almost rust-brown hair of the tarsi give them a pitchy-brown appearance in many specimens. The third antennal segment and the tibiæ and tarsi are sometimes pale.

♀.—Reddish-brown; antennæ, palpi and legs of same color; head and entire thorax light golden pruinose, on the thoracix dorsum nearly concealing the three usual stripes. Abdomen reddish; posterior lateral margins of segments 1–5 white pruinose; the extreme base of the first segment, the broad anterior portion of the following four, the remaining segments on the sides narrowly, and the venter black; on segments 2–4 the black band is much narrowed in the middle, on segment 5 usually interrupted. Halteres reddish Legs usually without any traces of black on the femora. Wings yellowish hyaline, apex broadly blackish. Clothing of entire body pale yellow and reddish, the short fine hair of the abdomen often being black on the black areas.

Type.—Types of both *adustus* and *combustus* are at the M. C. Z.

Habitat.—Clarendon (C. R. Jones, Aug. 11), Tex.; Wallace, Grove, and Hamilton Counties (F. H. Snow, July, 3,000 ft.), Ks.; Ft. Collins (July 11), Col.

I have seen the types of both *adustus* and *combustus* and, with the small amount of material at Loew's disposal, they appear distinct enough. Nevertheless the examination of a considerable number of specimens of both species has led me to consider *adustus* the female of *combustus*. My reasons are that *combustus* is always represented by males and *adustus* by females; that they are collected at the same time and place; that *adustus* shows the same line of variation from *combustus* as does the female of *dispar*, a nearly related species, from its male, and as does *bicolor* from *abbreviatus* which I have recently seen in coitu. So while I have never seen *combustus* and *adustus* in coitu, or been able to form a complete gradation from one to the other as can be done with males and females of *dispar*, I feel confident that future collecting will bear me out in uniting the two.

Saropogon coquillettii n. sp.

♂ ♀.—*Length* 14–16 *mm*—Thorax grayish-white pruinose, yellower on the dorsum; scutellum with four bristles: abdomen slender, reddish, with white pruinose and black spots on the sides; the black spots sometimes forming cross-bands over the tergum; hypopygium and venter black; wings hyaline, not black or brown.

♂.—Ground color of head and thorax black. Head wholly white pruinose; the dense row of bristles forming the mystax; the occipital and frontal bristles and beard white; antennæ, palpi and proboscis black with white pile. Thorax densely grayish-white pruinose, tinged with yellow on the dorsum; the geminate and lateral stripes on the latter opaque, and appear but faintly. Pleuræ with no pile; the trichostical bristles long and fine. Scutellum with four bristles; bristles and pile of entire thorax whitish, the bristles on the whitish pruinose coxæ rather fine. Halteres dull yellow, knobs dark. Abdomen reddish, polished, the posterior lateral margins of segments 1–5 white pruinose: anterior to each of these pruinose spots on segments 3–5 is a black spot; on segment 3 small, but larger on segments 4 and 5; these sometimes extend upward along the anterior margin of their respective segments and meet on the tergum. There is a slight trace of a black spot between the white bloom on segment 1. Venter black; segments 1 and 2 reddish; the posterior margins of segments 2–4 whitish pruinose. Hypopygium black, with black and white pile; rest of abdominal pile fine, white, longer on the sides. Legs black; the distal portion of all the femora, the outer basal half of the tibiæ and the tarsi yellowish-red; the tarsi often brownish-red. Femora without bristles, with fine silky white pile, shorter above, longer below; the pile and bristles of the tibiæ more yellowish; those of the tarsi reddish-brown. Claws black, reddish at extreme base; pulvilli pale Wings nearly hyaline, slightly darkened toward the tip; fourth posterior cell open.

♀.—Differs from the male in that the antennæ, except tip, and the legs except the tips of the tibiæ and of the tarsal segments, are yellowish-red. Segments 3–5 of the abdomen have the same black areas before the pruinose spots, but these are confined to the sides, and do not extend upwards to meet over the tergum.

Type.—U. S. N. M., Cat. No. 10329. One male and one female. There is also a male metatype at the American Museum.

Habitat.—Las Cruces, N. M. (C. H. Townsend, Aug. 23); Laredo, Tex. (Aug. 7).

In general appearance *coquillettii* more closely resembles *semiustus*, *hyalinus* and *luteus*, but can be at once separated from them by its possession of four, instead of two, scutellar bristles. It can be separated from *combustus* and *dispar* by its more slender build, smaller size, and nearly hyaline wings.

I take pleasure in naming this species in honor of Mr. D. W. Coquillett as an acknowledgment of my appreciation of the help which he has willingly given me.

Saropogon dispar (Pl. VII, fig. 4; Pl. VIII, fig. 2).

Saropogon dispar Coquillett, Jour. N. Y. Ent. Soc., X, 139, 1902.

♂ ♀.—*Length* 20–23 *mm.*—*Male.*—Black; face and front silvery pruinose; thoracic dorsum with three broad black stripes; femora with a reddish vittæ on the anterior side, often connected at the apex with a shorter one on the posterior side; wings deep brown or blackish. *Female.*—Varies from a black form similar to the male, to one with thorax, abdomen and legs reddish, and with much lighter wings.

♀.—Black; face, front and occipital orbits silvery-white pruinose; palpi, antennæ and the proboscis black, hairs and bristles on these. the mystax, frontal and occipital bristles, clear or sordid white, Dorsum of thorax, pleuræ, scutellum and coxæ densely yellowish-gray or grayish pruinose; the dorsum with three broad blackish stripes, the median one divided by a fine grayish line. All the bristles of the thorax sordid white, the short hair on the anterior portion of the dorsum black; pleuræ bare, without pile or bristles except before the yellowish halteres. Abdomen robust, tinged with blue, the sides of the first segment and the posterior lateral margins of the three following grayish pruinose; genitalia wholly black. Hair of the abdomen longer on the sides and venter black, except on the pruinose areas, where it is often white. Legs black, the fine bristles of all the coxæ white; all the femora before with a narrow reddish stripe sometimes connected over the apex with a similar stripe behind; basal portion of the segments of the middle and hind tarsi reddish. Bristles on the fore tibiæ and on all the tarsi sordid white; on the middle and hind tibiæ black; the white hair-like pile on the hind femora very noticeable. Wings brownish or blackish, darkest along the costa and at the apex; fourth posterior cell closed at the margin or narrowly open.

♂.—Reddish-brown; antennæ, palpi and base of proboscis of same color. Bloom of head and thorax more golden and the stripes of the thoracic dorsum less distinct, and all the pile and bristles of the entire body yellowish. The posterior lateral margins of the abdominal segments 1–5 and the venter of segments 2–4 whitish pruinose; the pleuræ and lateral spots on all the segments and the venter black. Legs wholly reddish-brown; all the femora above with a black vitta not reaching the apex. Wings much paler than in the male.

Type.—U. S. N. M., Cat. No. 6313. Type series, seven males and seven females.

Habitat.—Cuero (June 6), Columbus (E. A. Schwarz), and Runge (J. C. Crawford, Aug. 14), Tex.; Ardmore (C. R. Jones, July 11), Okla. (I. T.).

I have seen the type series and also a series of three males and nine females belonging to the U. S. Bureau of Entomology and now also at the National Museum. While the male is nearly constant in color, I found a gradation in the female from a black form similar to the male to a reddish-brown form like the one described above. This gradation is best brought out in the Bureau material bearing the "Hunter" labels.

Saropogon hyalinus.

Saropogon hyalinus Coquillett, Proc. Ent. Soc. Wash., VI, 185, 1904.

♂ ♀.—"*Length* 13 *mm.*—Very similar to *luteus*, except that the mesonotum is rather densely yellowish-gray pruinose and marked with three brown stripes, and the wings are pure hyaline." There are two scutellar bristles.

Type.—U. S. N. M., Cat. No. 8037. One male and one female.

Habitat.—Los Angeles Co., Cal. (Coquillett).

Saropogon luteus.

Saropogon luteus Coquillett, Proc. Ent. Soc. Wash., VI, 185, July, 1904.

Saropogon rufus Back, Can. Ent , XXXVI, 290, Oct., 1904.

♂ ♀.—*Length* 11–17 *mm.*—Reddish-yellow; apices of antennæ, tip and upper side of proboscis, front and occiput of head, a line on the distal margin of the trochanters and the claws black; all the hair and bristles yellow; mystax whitish. Head, except on the vertex, golden pruinose, pleuræ and thorax in front of the humeri also golden pruinose, but less densely so; scutellum with two bristles Abdomen slender, polished, nearly bare; posterior lateral margins of segments 2–5 yellowish pruinose. Wings hyaline, slightly fuscous along the brown veins and in the costal cell; fourth posterior cell rather broadly open.

Type.—U. S. N. M., Cat. No. 8036. Type series consists of three males and three females. The type of *rufus*, the description of which was in press at the time of the publication of *luteus*, is in the collection of Prof. C. W. Johnson, Curator of the Boston Society of Natural History.

Habitat.—Los Angeles Co. (Coquillett, June), and Tehachapi (A. P. Morse, Aug. 2), Kern Co., Cal.

This species may be distinguished from the other species by its much slenderer abdomen and uniformly reddish color.

Saropogon semiustus.

Saropogon semiustus Coquillett, Proc. Ent. Soc. Wash., VI, 186, July, 1904.

Saropogon albifrons Back, Can. Ent., XXXVI, 291, Oct., 1904.

♂ ♀.—*Length* 10 *mm.*—Black, slender; the abdomen, except the first segments and the apices of the femora, reddish-yellow; all the hairs and bristles of entire body whitish. Head everywhere white pruinose; thorax densely grayish pruinose. Third segment of antennæ tapering from the middle to the tip, one and one-fourth times as long as the first two; the style very small. Scutellum with two bristles;

halteres yellowish Abdomen polished, segment 1, especially on the sides, and the posterior lateral margins of segments 2–5, whitish pruinose. Wings hyaline, fourth posterior and anal cells open *In the female* the basal segments of the abdomen, the entire legs, the palpi, and often the antennæ are reddish, and the thoracic dorsum, upper pleuræ and scutellum more brassy-yellow pruinose, while the lower pleuræ and coxæ are whitish pruinose.

Type.—U. S. N. M., Cat. No, 7960. The two co-types of *albifrons*, the description of which was in press at the time of the publication of *semiustus*, are at the University of Kansas.

Habitat.—San Diego, Cal. (type, Coquillett); Bill Williams Fork, Ariz. (F. H. Snow, Aug.).

This species is similar in form to *combustus* and *dispar*, though not as robust. It will be easily separated from *hyalinus*, which it most closely resembles, by its smaller size and the dense grayish bloom of the head and thoracic dorsum, which is in sharp contrast to the reddish abdomen. In *hyalinus* the thoracic dorsum is a darker,—a yellowish-brown pruinose.

DEROMYIA.

Deromyia Phillippi, Verh Zool-Bot Ges, XV, 705, 1865
Deromyia Schiner, Verh Zool-Bot Ges, XVI, 653, 1866
Diogmites Loew, Cent, VII, 36, 1866
Deromyia Van der Wulp, Tijdsch V Ent, XXV, 92, 1882
Deromyia Williston, Trans Am. Ent. Soc, XI, 23, 1884; Psyche, 1889, 256; Biologia, Dipt., I, 310, 1901.
Diognites Osten Sacken, Biologia, Dipt, I, 173, 1887

Species of moderate to large size with elongate bodies, front tibiæ with a claw-like spur. Head broader than high, disciform; face broad, bare (sometimes with inconspicuous hair), with bristles on the oral margin, in profile straight or slightly concave, the oral margin most prominent. Antennæ (Pl. III, fig. 10) of moderate length, first two segments subcylindrical, the second longer than the first, both with bristly hair; third segment as long as the first two taken together, fusiform, bearing on its depressed distal end a short spine-like style, clothed above on the basal half with stiff, forward directed, appressed hair. Front but little wider than face, not widened above; vertex but little depressed; ocellar tubercle with two long bristles; occiput with well-developed bristles. Thorax only moderately arched, almost always with three black or reddish stripes on the dorsum, which are destitute of the short stiff, sparse hair that covers the rest of the dorsum, except for a narrow line of hair which divides longitudinally the median stripe; bristles well developed on the humeri, posterior callosities, scutellum, a transverse row over the base of the wings, and two short rows before the scutellum, between the median and lateral stripes; scutellum always with two bristles. Abdomen elongate, stout or more slender, not contracted toward base (except in male of ternata), with short, appressed hair, and, on sides of first segment, with stout bristles. Legs long, quite slender, the front tibiæ with a terminal claw-like spur; coxæ with bristles, longest and most dense on the fore pair; rest of legs with short, appressed, rather sparse, stiff hair and bristles; pulvilli of all the legs equal in length, but little shorter than the claws. All the submarginal and posterior cells except the fourth wide open, the third very broadly so; the fourth always closed, usually at some distance from the wing margin; anal cell closed at the margin.

Type.—*Deromyia gracilis* Rond.—(Williston.)

Saropogon and *Deromyia* are much alike and to use the words of Dr. Williston, are separated by the "more elongate form, the more slender abdomen and legs of the latter, and by the fourth posterior cell being always closed and usually long petiolate." The fourth posterior cell of *Saropogon* when closed either is closed on the margin or with a very short peduncle.

Type.—M. C Z.

SYNOPSIS OF SPECIES.*

1. Dorsum of thorax with three deep velvety black stripes† 8.
Dorsum of thorax without the three stripes velvety black, though sometimes very dark . 2

---

[*] This table does not contain the California species *pulchra*, for I am not certain whether the fresh specimens have velvety black stripes or not. This table is only a help toward the identification of this difficult genus. Considerable variation exists, especially in the color of the thoracic stripes.

[†] These thoracic stripes are three in number: one median and usually bisected longitudinally by a paler line; the lateral stripes are usually bisected or interrupted at the transverse suture so as sometimes to appear as two spots.

2 Wings altogether blackish or brown. 3
Wings more or less hyaline, at least not as above 4
3 Wings and abdomen black, thorax brownish, legs yellowish **platyptera.**
Wings brown or blackish, abdomen and legs yellowish (Mexican and southwestern species) **sallei.**
4 Abdomen reddish, last two segments and anterior margins of the other segments and venter black (Texan species) **hypomelas.**
Abdomen reddish or black, but never with the above combination of color 5
5 Bristles of pronotum black 6
Bristles of pronotum yellowish 7
6 Hair and bristles of coxæ rarely wholly, always partly, black, common rich reddish-brown, sometimes paler, species of the northern Atlantic States, with stout abdomen with black and pale golden spots on the sides of segments 2–5 or 6 **umbrinus.**
Hair and bristles of coxæ always pale, abdomen of male long, slender, black, posterior angles of segments 2–5 broadly white pruinose, female with two very narrow dark median lines on dorsum, abdomen reddish yellow with segments 2–5 showing on sides a black and yellow pruinose area **discolor.**
7 Length 30–33 mm, see description of **bigoti.**
Length 15–17 mm, palpi black, abdomen almost wholly pruinose without black spots (southwestern species) **perplexa.**
Length 16–25 mm, palpi reddish-yellow, abdomen with black spots along the sides **symmacha, angustipennis, rufescense** and sometimes **bilineata.**
8 Abdomen long, cylindrical, in the male coarctate, the greatest constriction between the second and third segments **ternata.**
Abdomen flattened, not at all coarctate in male 9
9 Length 19–23 mm, the two median narrow stripes not merging into red anteriorly (Cuban and Florida species) **bilineata.**
Length 14–17 mm, the median dorsal stripe not geminate, but merging into red anteriorly **winthemi.**

Deromyia angustipennis.

Diogmites angustipennis Loew, Cent, VII, 41, 1866
Deromyia angustipennis Williston, Trans Am Ent Soc, XI, 25, 1884 (note)
Deromyia angustipennis Jones, Trans Am Ent Soc, XXXIII, 280, 1907 (locality note)

♂ ♀ —*Length* 18–20 *mm* —More grayish than the other species, head and thorax dull yellowish-gray pruinose, the thoracic stripes distinct, dull olivaceus, the median stripe narrowly divided and distinctly separated from the lateral stripes by a line of grayish bloom; abdomen when viewed from above yellowish-gray pruinose; when viewed from behind, reddish, the lateral margins and posterior angles of the segments only then appearing yellowish-gray pruinose with a small elongate black spot on the side above the grayish bloom. Wings nearly hyaline, toward the apex and posterior margins grayish.

Face and front pale yellowish-gray pruinose, the occiput more olivaceous with pale bristles. Mystax sordid white; hair of front along the orbits and on vertex, short, pale; ocellar tubercle with two black bristles. Antennæ yellowish, the basal segments above with black hair, below, with paler hair. Palpi reddish-yellow, with pale pile; proboscis black, yellowish at base below. Thorax dark chestnut; the pleuræ nearly black in places; wholly and densely covered with a dull yellowish-gray bloom. Dorsum with three distinct more or less olivaceous stripes; the median stripe not at all attenuated behind, narrowly bisected by a pale longitudinal line; the lateral stripes greatly abbreviated at both ends, subinterrupted at the transverse suture; on the median stripe often two black lines, and on the lateral ones two black spots may be seen. Bristles of the prothorax and before the halteres pale; of the dorsum and scutellum black. Abdomen rather slender, in certain lights appearing wholly grayish pruinose, though not always so; when viewed from behind and to one side it appears reddish, and then only the lateral and posterior margins of the segments appear pruinose, and segments 2–6 of the male and segments 2–5 of the female, display a small black spot on the anterior half. Last two segments of the female abdomen polished red; the male hypopygium polished red with pale pile. Legs yellowish-brown; tips of tarsi and all the bristles black. Coxæ like pleuræ, with wholly white bristles. Halteres yellowish Wings narrow, hyaline, sometimes slightly tinged with yellow; toward the apex and the posterior margin rather grayish, the narrow borders of the veins running to the posterior margin, and the posterior margin itself hyaline and destitute of microscopic pubes; the third and fourth longitudinal veins not bordered at the apex.

Type.—M. C. Z.

Habitat.—Ks. (type); Colorado Springs, Col. (Osten Sacken); Col. (Morrison, July 30); Ill. (Forbes); Glen, Sioux Co., and Lincoln, Neb. (P. R. Jones).

As I interpret this species in eight specimens from Colorado, it can be separated from the other species by the more grayish thoracic bloom, the somewhat olivaceous dorsal stripes, and in certain lights the almost uniformly pruinose tergum of abdomen. It is quite distinct from *symmacha*. Mr. P. R. Jones states that this is a common species in eastern and northern Nebraska.

Deromyia bilineata (Pl. III, fig. 10; Pl. IX, fig. 5).

Diogmites bilineata Loew, Cent., VII, 40, 1868.

Deromyia bilineata Van der Wulp, Tijdsch. v. Ent., XVII (Sep.) 2.

♂ ♀.—*Length* 19–23 *mm.*—Much resembling *symmacha* and the female of *discolor*, but differing from the latter in having, almost without exception, yellow prothoracic bristles instead of black, and, as a rule, in the possession of velvety black lateral thoracic stripes; in *symmacha* the dorsal lateral stripes *as a rule* are reddish; in *bilineata* they are, with few exceptions, black. For separation of *symmacha* and *bilineata*, and for the description of the wing of *bilineata*, see note under *symmacha*.

Brownish-yellow, the pleuræ more or less blackish; head, thorax and coxæ golden pruinose. Antennæ and palpi reddish, the latter sometimes dark brown, always with pale pile. Mystax, beard, pile on sides of prothorax and bristles of coxæ, before the halteres, and on sides of the first abdominal segments, whitish; bristles of the occiput and prothorax, as a rule, reddish-yellow; hair and bristles of antennæ, ocellar tubercle, thoracic dorsum, scutellum and abdomen black. The two narrow median thoracic stripes are usually velvety black, as also are the lateral ones; but occasionally they are brownish or even much more faded, and when so the specimen very much resembles *symmacha* and then can best be separated by means of the clouds in the wing. But the velvety black stripes are the rule; the median ones being abbreviated posteriorly and seldom as black stripes reach the pronotum; the lateral stripes are bisected at the transverse suture and are thus divided into two spots, the anterior one being somewhat oval, the posterior one being much attenuated posteriorly. The blackish color of the pleuræ is variable in extent and in good specimen does not show through the bloom. Abdomen reddish or brownish-yellow, the posterior angles and narrow posterior margins of the segments and the venter, whitish or pale golden pruinose; segments 2–5 of the female, and 2–6 of the male, each with an oblique black spot on the sides near the base above the whitish bloom of the posterior angles. Male hypopygium reddish or brownish. Legs brownish-yellow, with black hair and bristles; the tarsi toward tips blackish. Wings as in note under *symmacha*.

Type.—M. C. Z. Two female specimens.

Habitat.—Cuba (type); Florida.

Van der Wulp thinks that *bilineata* is a synonym of *basalis* Walker "without the least doubt," and records it from Connecticut. I am very confident that *basilis* is the female of *discolor.* From the original description it would be hard to separate the female of *discolor* from *bilineata;* in fact, while studying the types at the M. C. Z., I made the note that I believed them the same species. That was when I had very little material. Now that I have a much larger series, I feel certain that they are distinct. Loew founded *bilineata* on two female specimens from Cuba, and I have never seen a female of *discolor* from farther south than North Carolina. Of the numerous specimens of *bilineata* before me, all from Florida, I find the males do not differ from the females, which could not be so were *bilineata* and *discolor* the same. For variation in the thoracic stripes, see note under *symmacha.*

Deromyia bigoti.

Saropogon bigoti Bellardi, Saggio, II, 70, 1861.

"♀.—*Length of body* 30 *mm.; spread of wings* 54 *mm.*—Totus ferruginea-fuscus Thorace obsolete nigro-maculato, dorso setuloso; abdomine ad basim ferrugineo-fusco, ad apicem———. Pedibus longis, multi spinosis; spines crassis, brevibus, nigris. Alis longis, flavis; cellula prima posteriore ad marginem sub angustata, quarta clausa."

Type.—Bigot collection.

Habitat.—Mexico, So. Ariz. (Aug.); Salt Lake City, Utah; St. Augustine and Ormond, Fla. (C. W. Johnson).

Bellardi made his description from a very poorly preserved specimen, and as it stands, might apply to any of several species. It is, however, a very large insect, and relying more upon this fact than the description, I have identified four specimens, three from southern Arizona and one from Utah. They have a very broad robust thorax and stout abdomen; the two dorsal stripes of two are reddish-brown, of another more blackish, and of the fourth, a greased specimen, hardly perceptible. The antennæ and palpi are wholly yellowish, the latter with pale hair, the former with black. Mystax rather thin, whitish. Bristles of occiput, before the halteres, and on the sides of the first abdominal segments yellowish; those on thoracic dorsum and scutellum black. In all my specimens I notice a small oblique black spot near the anterior lateral margins of segments 2–5 in the female, in the male on segments 2–6; behind which the segments are a pale golden pruinose.

There are three other specimens, two belonging to the National Museum and one to Prof. J. M. Aldrich, from Florida which are between 30–33 mm. long, and may be *bigoti*, although I believe them distinct from the above-mentioned specimens. They also are very robust specimens; on each of segments 2–5 is a broad blackish cross band, in one specimen interrupted in the center, the anterior and posterior margins being narrowly reddish and the posterior angles light golden pruinose. They look much like very large specimens of *refuscens*.

Deromyia discolor.

Diogmites discolor Loew, Cent., VII, 37, 1866.
Deromyia discolor Williston, Tr. Am. Ent. Soc., XI, 25, oc. in Pa.
? *Dasypogon basilis* Walker, Dipt. Saund., 95, 1856.

♂ ♀.—*Length* 17–22 *mm.*—Reddish-yellow; dorsum of thorax with two very narrow median stripes; abdomen narrow, that of the male, excepting the white pruinose posterior angles and lateral margins of the several segments, almost wholly black; that of the female yellowish-red, with small black spots in front of the white pruinose posterior angles; wings yellowish hyaline, toward the apex and posterior margin brownish.

♀.—Head and thorax reddish-yellow, the face and front with a densely whitish-yellow bloom; occiput golden-brown pruinose except on the extreme orbits Antennæ reddish-yellow, palpi black or brownish-black. Bristles of the antennæ, front, occiput and palpi black; those of the last two often tawny; mystax sordid white. Dorsum of thorax with two narrow velvety black median stripes, much abbreviated behind; lateral stripes indistinctly defined, dark brown; the humeri and a broad stripe extending backward along the lateral margins and including the scutellum, and the pleuræ and coxæ, golden pruinose. Hair and bristles of dorsum and the trichostical bristles, black; the latter proportionately short. Bristles of coxæ pale. Abdomen narrow, for the most part black, except on the distal portion of the first segment and the anterior portion of the second, where it is reddish; segments 2–5 with their lateral margins and posterior angles white pruinose, on segments 2–4 the white bloom nearly meeting to form a cross-band over the tergum; abdomen everywhere with short black hair, except on the hypopygium, where it is longer. Wings yellowish-hyaline, the greater part of the marginal and first submarginal, the outer half of the first posterior, and the whole of the second submarginal, the second and third posterior cells, and a triangular area in the outer part of the fourth and fifth posterior cells, and a trace along the margin of the axillary cell brownish.

♂.—The female differs from the male most noticeably in that the abdomen is yellowish or brownish-red, and that on the anterior lateral margins of segments 2–5 in front of the white bloom is a black spot, sometimes indistinct. The trichostical bristles are only in exceptional cases yellow; but the bristles of the occiput are usually yellow and the dorsal stripes paler.

Type.—M. C. Z.

Habitat.—Mass., Conn., N. Y. (Long Island); N. J. (Aug. 26, E. Daecke); Caldwell and Merchantville (July 19, Smith Cat.); Pa. (Delaware Co., C. W. Johnson, Aug. 17 27); Del.; Washington, D. C. (Aug. 22, J. C. Bridwell); Md. (June).

Described from twenty males and fifteen females. There are sixteen specimens at the M. C. Z. The male of this species is most easily recognized by the very slender, long, black abdomen, with the white bloom on the lateral margins and posterior angles of the segments. In greased specimens these silvery white areas appear reddish. The female is less easily recognized from *bilineata* and *symmacha*, but, so far as I know, is quite unique in always possessing the two very narrow and narrowly separated velvety black stripes, reaching backward hardly beyond the transverse suture. In one female the dorsum, aside from the stripes, is nearly olivaceous. These two median stripes are characteristic in the male, but in some cases one finds the broader lateral stripes, which ordinarily are reddish, of a deep velvety black.

I have no account of this species farther south than North Carolina. The type females of *bilineata* are very close to the females of *discolor* (see note under *bilineata*). *Dasypogon basalis* Walker, is, I believe, a female *discolor;* I do not believe that it is *umbrina*.

Deromyia hypomelas.

Diogmites hypomelas Loew, Cent., VII, 42, 1866.

♀.—*Length* 17.6–20.5 *mm.*—Translation.—Reddish-yellow, opaque; stripes of the thoracic dorsum, lateral spots of abdomen, apex and venter black; pile and bristles of entire body pale.

Reddish-yellow, opaque; pile and bristles of entire body pale Head golden pruinose. Antennæ reddish-yellow, the third segment broader than in most species. Palpi reddish-yellow. Thoracic dorsum thinly covered with pale golden bloom, having three black stripes, the median one divided, the lateral ones very greatly abbreviated anteriorly.

Pleuræ almost wholly black, lightly golden pruinose. The last three or four abdominal segments, the anterior angles (and sometimes the anterior margins) and the venter black. Legs reddish, femora above with black stripes. Wings subhyaline, tinged with a brownish-yellow color, toward the apex and posterior margin darker; the fourth posterior cell closed on the very margin itself, the third less broad than in related species. (Abdomen very stout.)

Type.—M. C. Z. Two female specimens.

Habitat.—Pecas River, N. M. (type).

I have never identified this species.

Deromyia perplexa n. sp.

♂ ♀.—*Length* 15–17 *mm.*—Small, rather olive-gray colored species with black palpi and reddish antennæ; mystax white. Thoracic dorsum with three somewhat olive colored stripes, narrowly separated from each other by a line of the same golden bloom that covers the humeral angles, scutellum and lateral margins and the upper portion of the pleuræ; the lower portion of the latter paler, and the coxæ almost whitish pruinose. Abdomen reddish-brown, light golden pruinose on the sides, and in ceratin lights on the posterior margin of the segments. Legs varying from brownish-yellow to blackish-yellow, all the hair and bristles black; the hind tibiæ on the inner side with rather dense pale golden appressed pile. Wings tinged with fuscous, clearer toward the base.

Face and front pale golden pruinose; the occiput more brownish, on the lower orbits whitish pruinose; beard fine, white. Proboscis and palpi black. Antennæ reddish, the third segment in one specimen blackish distally; all the segments with black hair. Bristles of thoracic dorsum, scutellum and ocellar tubercle black; of the upper occiput, prothorax, before the halteres and on sides of the first abdominal segment and on the coxæ yellowish or white. Patches of black ground color may be seen beneath the bloom on the meso-, sterno- and by hypopleuræ. Abdomen reddish-brown, with short pale hair; the lateral margins are blackish, but concealed beneath a grayish, in certain lights, golden bloom. Venter grayish pruinose. In the single female, two narrow black lines on the median stripe, and two black spots on the lateral stripes, may be seen.

Type.—The type series consists of three males and one female. Three males, co-types, deposited at the National Museum, Cat. No. 11,028. The one female at the University of Kansas. The female specimen is the property of the University of Kansas.

Habitat.—Rio Ruidoso, White Mts., N. M.

Deromyia platyptera.

Diogmites platypterus Loew, Cent., VII, 36, 1866.

Deromyia platyptera Jones, Trans. Am. Ent. Soc., XXXIII, 280, 1907 (locality note).

♂ ♀.—*Length* 16–20 *mm.*—Black, the wings of the same color, the thorax, excepting the dorsal stripes, brownish, or brownish-black; antennæ and legs yellowish; face golden pruinose; mystax whitish; palpi black-haired.

Black; face and front pale golden pruinose, the mystax whitish; the face immediately above mystax with a few black inconspicuous hairs. Occiput brownish pruinose, and, together with the front, with black hair and bristles. Antennæ reddish-yellow, the second segments nearly twice as long as the first, both with black hair; third segment with blackish hair on the basal half, style black. Palpi black or brownish with black hair. Thorax, excepting the black dorsal stripes wholly brownish or brownish-black, rather more bare; the short hair and all the bristles black. Scutellum of like color with black bristles. Abdomen almost uniformly black, nearly opaque, toward the tip polished; the bristles on the sides of the first segment and the short hair of the entire tergum, black. Hypopygium polished black, black pilose. Coxæ of same color as pleuræ, with scant blackish hair Legs sordid yellowish, the tibiæ reddish, tips of tibiæ and of the tarsi and the claws black; pulvilli yellowish-white; hair and bristles wholly black. Halteres brownish, the knob often yellowish. Wings broad, black or blackish, paler toward the posterior angle.

Type.—M. C. Z. Two male specimens; one with abdomen wanting.

Habitat.—Ill. (type); Carbondale, Ill. (Aug. 11, G. H. French); Peru and Union, Neb. (P. R. Jones); Ames, Iowa (J. M. Aldrich); Opelousa, La. (June, C. W. Johnson)· Miss. (Sept., D. W. Coquillett).

This species is most easily recognized by the contrast between the black head and abdomen and the brownish thorax. In some specimens the dorsum of the thorax is quite blackish-brown and shows almost no trace of the stripes, and in some greased specimens the stripes do not show. The wings vary in intensity of their color; one specimen has the wings very black with the centers of the discal, second, third, fourth and fifth posterior, anal and auxiliary cells clear.

Deromyia pulchra.

♂.—*Length* 26 *mm.*—Brassy-yellow pruinose, the golden pruinose lines separating the three blackish thoracic stripes extending from the humeri to the base of the scutellum; when viewed from above, all the abdominal segments dark brownish with the posterior margins and angles broadly covered with golden bloom which, becoming gradually attenuated, reaches the anterior lateral angles, thus leaving the dark basal two-thirds of the segments semi-circular; still looking at the insect from above, there appears an interrupted golden line extending from base to tip of the abdomen along the middle.

Face and front, light golden pruinose; the occiput black, except at the vertex, but light golden pruinose; palpi and antennæ reddish, the proboscis so only at the base; mystax, pile of palpi, beard and the bristles on under side of the second antennal segment, occiput, prothorax, coxæ, before the halteres and on the sides of the first abdominal segment, whitish or yellowish. Remaining hair of antennæ, dorsum of thorax and legs black; the bristles of the last two and the scutellum black. Ground color of the pleuræ chiefly black. The median dorsal stripe is composed of two blackish lines extending from the prothorax to the base of scutellum, narrowly separated by a line of dull bloom as far as the transverse suture, thence united and soon becoming reddish. Lateral stripes broad, attenuated, constricted on the sides at the transverse suture but not bisected; the golden lines separating the median and lateral stripes reaching from the prothorax to the base of the scutellum. Abdomen stout, with blackish hairs on the black part, on the golden pruinose areas and on the distal portion yellowish; genitalia blackish above, reddish below, with long light colored pile; the dark areas of the abdomen become brassy-yellow pruinose in different lights, but when viewed from above, as described above. Legs reddish-yellow; the tarsi, distally, reddish-brown. Wings rather small, subhyaline, the veins blackish and broadly margined with fuscous; the fourth posterior cell with a comparatively short peduncle.

Type.—U. S. N. M., Cat. No. 11,027. A single male.

Habitat.—Los Angeles Co., Cal. (D. W. Coquillett).

This is one of the most striking species of *Deromyia* that I have seen.

The dorsal stripes are not now velvety black, though I half suspect that they may be in fresh specimens.

Deromyia rufescens.

Dasypogon rufescens Macquart, Hist. Nat. Dipt., I, 295, 1834.
Dasypogon rufescens Walker, List, VI, 426.
Dasypogon rufescens Osten Sacken, Cat., 1878, 232 (note on type and syn.).
Diogmites rufescens v. d. Wulp, notes from the Leyden Mus., IV, 76, 1882.
Deromyia rufescens Williston, Trans. Am. Ent. Soc., XI, 24, 1884 (note).

I have before me several specimens from southern Georgia which I take to be *rufescens* Macquart. They resemble somewhat the females of *discolor*, but run larger and are stouter; the thoracic dorsum does not show the two very narrow median black stripes unaccompanied by black lateral stripes, which is characteristic of the dorsum of *discolor* females; and the black of the abdomen, which in *discolor* is confined to the anterior half of the lateral margins of the segments, on these specimens extends upward and often meets on the tergum to form a blackish cross-band. A description of these specimens is as follows:—

♂ ♀.—*Length* 18–25 *mm.*—Yellowish-brown; dorsum of thorax with brownish to velvety-black stripes; the lateral and posterior margins of the abdominal segments narrowly, and the posterior angles more broadly, pale golden pruinose, the rest of each segment reddish except broadly on the lateral margins where it is blackish; this black of the sides extends upward upon the tergum thus giving the abdomen, as a whole, a blackish appearance.

Face, front, occiput, thorax except dorsal stripes, and the coxæ, pale golden pruinose; bristles of mystax and scattering hair of face just above whitish; palpi and antennæ reddish, the former with yellowish, the latter with black, hair. Bristles of occiput, coxæ, first segment of abdomen and before the halteres pale; of the thoracic dorsum and scutellum black. The three dorsal stripes reddish-brown, the median stripe very narrowly divided by a longitudinal pale line, and the lateral stripes as usual, bisected at the transverse suture; the stripes vary from wholly reddish-brown with traces of black along their middle, to wholly velvety black, and in the blackest the median stripe is but very faintly divided.

Abdomen quite stout, the lateral and posterior margins of the segments, narrowly, and the posterior angles more broadly, pale golden pruinose; the anterior margins sometimes narrowly likewise pruinose; last two segments of female polished. The anterior lateral margins of segments 2–5 black; this black in some specimens soon shades off into a rich reddish-brown on the middle of the tergum or, as in others, it may extend upward on either side to meet across the tergum, thus giving the abdomen a blackish appearance, broken only by the golden bloom. Genitalia of male reddish with pale pile. Legs brownish-yellow, hair and bristles black, tips of tibiæ and tarsi black Halteres fuscous. Wings wholly yellowish hyaline.

Habitat.—Macquart records this species from Philadelphia, but his specimens may have come from one of several places in this country. Van der Wulp identified this species from Arizona, but my specimens belong to the National Museum and were collected in Georgia.

Prof. C. W. Johnson first called my attention to the validity of *rufescens*. There is no doubt that it is distinct from *discolor* with which it is associated in Aldrich's list.

Deromyia sallei (Pl. VI, fig. 3).

Saropogon sallei Bellardi, Saggio, II, 70, 1861.
Diogmites sallei O. Sacken, Biologia, Dipt., I, 174, Pl. III, fig. 11.
Deromyia sallei Williston, Biologia, Dipt., I, 311; oc. in many Mexican localities.

♂ ♀.—*Length* 19–22 *mm.*—Rather slender yellowish species with deep yellowish-brown or blackish wings; thorax and coxæ rather thinly pale golden pruinose, leaving on the dorsum two narrow and two broader lateral stripes, besides other less distinct lines; bristles of palpi, antennæ, thorax and legs, except the coxæ, black.

Yellowish, sometimes tinged with a brownish color; the face and front densely golden pruinose, the thorax less thickly so; the occiput darker but concealed by a fairly dense golden bloom. Abdomen nearly unicolorous, without darker spots on the lateral margins; the extreme base, and sometimes the extreme lateral margins, pale golden pruinose, but only so in certain lights. Bristles of mystax not dense, yellowish or whitish, the remainder of the face without hair or pile of any sort; front with only a few short black hairs near the orbits on the vertex; ocellar tubercle with black bristles; upper occiput with brownish bristles, the lower portion with more numerous and yellow bristles and hair. Antennæ and palpi reddish-yellow, with short black hair; the first segment of the antennæ without noticeable hair below, and on all the segments the hair is comparatively short. Proboscis black, yellowish at base. Thorax and coxæ thinly golden pruinose The dorsum shows two narrow well separated median, and two broader lateral stripes of the same brownish color; there are also spots of similar color lying between the anterior ends of the lateral stripes and the median stripes, and outside and confluent with the extreme anterior ends of the median stripes. The median stripes extend from the prothorax nearly to the base of the scutellum; the lateral ones, considerably abbreviated anteriorly, likewise extend backward nearly to the scutellum, becoming much attenuated behind and bisected by a line of pale bloom along the transverse suture. Scutellum thinly golden pruinose. Hair and bristles of dorsum black; pleuræ without hair, except sometimes on the upper part of the sternopleuræ, where it is very inconspicuous and black; trichostical bristles black, surrounded by pale pile. Legs yellowish, tarsi often darker; the coxæ rather sparsely clothed with pale bristles, the rest of the legs with short black hair and long black bristles; the hair on the lower posterior side of the front and middle femora pale. Claws black, pulvilli pale. Halteres sordid yellow Wings brownish or blackish, the centers of all the posterior, discal, anal and axillary cells paler, but in varying degrees.

Type —University, Turine, Italy

Habitat —Arizona (F H Snow), Huack Mts (July 9, Brooklyn Inst), N M , also several places in Mexico

The specimens taken by Dr F H Snow have the wings much more brownish, while those from the Huach Mountains have nearly black wings They are alike in other respects, and the blackness of the wings is probably due to altitude So far as I know, the coloration of the thoracic dorsum is unique Described from six specimens

Deromyia symmacha.

Diogmites symmacha Loew, Cent , X, 26, 1872

♂ ♀ —*Length* 16–22 *mm* —Brownish yellow, antennæ and palpi yellow, throacic stripes usually of the same reddish brown color, sometimes darker or even black, bristles of pronotum and before the halteres yellow, abdomen yellowish red, lateral margins golden pruinose with black spots on segments 2–5 or 6

Brownish-yellow, face and front densely light golden pruinose Antennæ and palpi yellow the former with black hair, the latter with yellow pile, occipital bristles almost wholly yellowish Thoracic stripes usually of the same reddish brown color, sometimes blackish, the median stripe but indistinctly divided the median and lateral stripes separated by bright golden, very distinct pruinose stripes which gradually diverge anteriorly As in the female of *discolor*, the lateral margins of the dorsum, the scutellum pleuræ and coxæ, are bright golden pruinose, bristles of pronotum yellow, thus differing from those of the female of *discolor*, which are, almost without exception black Hair and bristles of dorsum and scutellum black, trichostical bristles yellow Abdomen reddish, lateral margins and posterior angles of all the segments golden pruinose, segments 2–6 of the male, and segments 2–5 of the female with a deep velvety, narrow, oblique, black spot on the side bordering the pruinose areas in front The tergum in various lights shows a light golden bloom with black or yellowish hair, male hypopygium reddish, with yellowish pile, the last two segments of the female polished Legs wholly yellowish, tips of tibiæ and tarsal segments darker the short hair and bristles wholly black

Type —M C Z One male and one female specimen

Habitat —Texas (type), Blanco Co , Round Mt , and Luling, Tex

Loew says that *symmacha* is with difficulty separated from *bilineata* They are very much alike and some specimens of the latter are hardly distinguishable from the former except by the wing. However, I believe that Loew's type pair of *bilineata* are more an exception than the rule in regard to the color of the thoracic stripes. I have before me over twenty specimens from Florida which are undoubtedly *bilineata*, a few of them are as Loew says, but the greater part are at once separated by the velvety black stripes. I am aware that these are apt to be variable as to intensity of color, but the velvety black stripes are the rule in *bilineata*, while in *symmacha* they are not.

In considering the wing, I will here give a translation of Loew's description:—This species is with difficulty distinguished from *bilineata* unless it is smaller, and has less broad wings, otherwise colored with cinereous. This color in *bilineata* fills the entire submarginal cell of the wings and the first posterior cell, thence wholly covers the wing from the margin as far as the base of the second submarginal cell and the second and third posterior cells excepting the very base. In this species (*symmacha*) the cinereous color does not reach the posterior margin in the second submarginal cell, nor indeed both margins in the first and second posterior cells, excepting near the margin of the wing; in the third posterior cell, indeed, it is separated from all the margins by a hyaline border; in *bilineata* in the fourth posterior cell the cuneate spot is seen subcoherent with the apical margin; in *symmacha* the oblong border is separated everywhere alike from all the margins by the hyaline border; in the former, the large triangular spot in the fifth posterior cell is observed coherent with the margin of the wing, in the latter, the triangular spot of this cell is separated from the margin of the wing by a hyaline border; the axillary angle of *bilineata* shows no (or slight) trace of a cinereous picture, that of *symmacha* shows a border parallel with the margin of the wing. The third posterior cell of *symmacha*, on account of the more narrow wing, is less broad than that of *bilineata*.

Deromyia ternata.

Diogmites ternata Loew, Cent., VII, 38, 1866.

♂ ♀.—*Length* 19–22 *mm.*—Wholly reddish-yellow, except the three velvety black stripes of the thoracic dorsum. Abdomen cylindrical, in the male noticeably contracted toward the base, this constriction being greatest between the second and third segments.

Face and front light golden, sometimes nearly white, pruinose; antennæ and palpi yellowish. Hair of antennæ black; of the palpi yellowish or black; bristles of the occiput behind the vertex brownish or black, lower down and along the outer orbits reddish. Thoracic stripes velvety black, the median one but indistinctly divided by a reddish stripe and abbreviated posteriorly behind the transverse suture; separated from the lateral stripes by a clearly defined light golden pruinose stripe. Lateral stripes narrowly bisected at the transverse suture, much attenuated posteriorly; lateral margins of dorsum broadly golden pruinose. Hair and bristles of entire dorsum and before the halteres black; scutellum reddish with two marginal bristles black. Abdomen elongate, more cylindrical, rather slender, in the male distinctly contracted toward the base, the constriction being greatest between the second and third segments; the female abdomen is a trifle stouter, but is not contracted as in the male: in both sexes the abdomen is wholly reddish, without black or golden spots of any sort, but sometimes darker on the distal half; the short hairs black, golden on the distal portion and on the reddish hypopygium. Wings rather broad, yellowish hyaline; the entire half and the posterior margin brownish. Legs wholly yellowish-red, long, with black and reddish hairs, and black bristles.

Type.—M. C. Z.

Habitat.—Cuba (type); St. Augustine, Fla. (C. W. Johnson); Round Mt., Tex.; Las Cruces, N. M. (Aug. 19, C. H. T. Townsend); Garden City, Ks. (Aug.); Mo.; Rocky Ford, Col. (Aug. 7).

I have before me eight specimens of this species representing both sexes. They are easily separated from the other species by the long cylindrical abdomen, which in the male is decidedly contracted toward base, and in this regard somewhat resembles *Blepharepium coarctatum.* The legs are very long and "scraggly." It is much larger than *winthemi.*

Deromyia umbrina.

Diogmites umbrinus Loew, Cent., VII, 43, 1866.

? *Dasypogon herennius* Walker, List, II, 339, 1849 (query by J. M. A.).

Diogmites umbrinus Osten Sacken, Cat., 233, 1878; note on type of *D. basalis* Walker.

Deromyia umbrina Williston, Trans Am. Ent. Soc., XI, 25, 1884 (note).

Deromyia herennius Howard, Insect Book, 1902, Pl. XIX, fig. 18.

♂ ♀.—*Length* 17–26 *mm.*—Robust, rich reddish-brown species. Thoracic dorsum with or without faint traces of the usual black stripe; abdomen wholly reddish-brown, the sides of the segments adorned with a black and white pruinose spot; clothing of the palpi, thorax and legs wholly black; hair and bristles of coxæ rarely wholly, always partly, black; wings tinged with brownish.

Face, front and occiput densely pale golden pruinose; mystax dense, yellowish-white; the face above clothed with a few scattering inconspicuous black hairs; front along orbits and before the ocellar tubercle with black hairs. Antennæ reddish-brown; second segment nearly twice as long as the first, both covered with black hair; third segment clothed above on the basal half with black hair more dense than in many of the other species; style black. Palpi brownish with black hair, sometimes intermixed with paler hair; proboscis black, brownish at base below. Ocellar tubercle and upper occiput with black bristles; the occiput below with paler bristles and hair. Thoracic dorsum obscurely adorned with three black stripes; the median stripe greatly abbreviated posteriorly (usually before the middle of the dorsum), geminate, the two parts being separated by a distinct interval; lateral stripes abbreviated anteriorly, strongly bisected at the transverse suture (see note). The short hair and the bristles of the dorsum black; on the pleuræ short hair is present on the posterior portion of the mesopleuræ and on the upper portion of the sternopleuræ; trichostical and scutellar bristles black. Abdomen very robust, much stouter than in *discolor* and *platyptera*, wholly reddish-brown or reddish-yellow; above, on the sides of the segments, especially distinct on segments 2–5, are two spots, the anterior one is black and extending from the anterior angle of the segment backward and upward, and ending a trifle beyond the middle of the segment; the second spot is yellowish-white, sometimes quite white, and extends backward to the posterior margin covering the rest of the lateral margin. Venter brownish. Abdomen clothed with very short black hair, the bristles on the sides of the first segment black; genitalia of male reddish-brown, with longer black hair. Legs blackish-brown, varying to a lighter color, the base of the tarsal segments often paler; all the bristles and hair black; the coxæ of the same color as the pleuræ, the front pair usually with numerous brownish, as well as black, hairs, the two posterior pairs usually almost wholly with black shorter hair. Claws black, pulvilli yellowish-white. Wings yellowish hyaline, inclined to be slightly variable; the anal cell and posterior angle much clearer and nearly destitute of microscopic pubes.

Type.—M. C. Z.

Habitat.—Vt.; Hanover, N. H.; Amherst (July 20–Aug. 22), and Wareham (July 29, H. J. Franklin), Mass.; Conn.; N. Y. (July); N. J. (July 14); Pa.; Ill.

I have no record of this species farther south than New Jersey. It is very abundant here in Massachusetts and Connecticut during the latter part of July and August in pastures and open fields. The species is subject to numerous small variations; the thorax may not show any sign of the black dorsal stripes or these may be quite distinct; the color of the abdomen may be dark, or nearly yellow. Specimens are very apt to become greasy and the white spots of the sides of the abdomen are then lost.

Deromyia winthemi.

Dasypogon winthemi Wiedemann, Dipt. Exot , 223, 1821.
Dasypogon winthemi Wiedemann, Auss. Zw., I, 387, 1828.
Dasypogon winthemi Schiner, Verh. Zool.-Bot. Ges., XVI, 678, June, 1866
Diogmites misellus Loew, Cent , VII, 39, July, 1866
Deromyia winthemi Van der Wulp, Tijdsch. v. Ent , XXV, 93, 1883 ; XXVII (Sep.), 2; oc. in Conn , notes.
Deromyia winthemi Williston, Trans. Am. Ent. Soc , XI, 24, Pl. II, fig. 6, synonomy, 1884.
Diogmites misellus Osten Sacken, Biologia, Dipt., I, 177, 1901; doubts identity of *misellus*.

♂ . ♀—*Length* 14.5–17 *mm*.—A much smaller yellowish species, with three velvety black stripes on the thoracic dorsum, and the abdominal segments darker above, except on the margins, where they are pale yellow pruinose.

This species is more easily recognized by its small size and the three velvety black stripes on the dorsum Face, front and occiput pale golden pruinose; the antennæ and palpi reddish-yellow; the proboscis black, yellowish only at base below. Mystax, beard and bristles of coxæ whitish; hair of palpi and bristles of prothorax, first abdominal segment and before the halteres reddish-yellow Hair and bristles of the thoracic dorsum black, the hair longer than usual. Thorax, including the coxæ, wholly light yellow pruinose, the three black dorsal stripes distinctly separated from each other; the median stripe merges into reddish-brown anteriorly; the black of the lateral stripes is also abbreviated anteriorly and bisected at the transverse suture. The segments of the abdomen, excepting all the margins, sometimes blackish-brown, sometimes hardly darker than the rest of the body, and occasionally almost yellow; the margins and the venter, light golden pruinose, and some specimens show traces of black spots along the sides of the abdomen. Legs yellowish-red; the apices of the tibiæ and tarsi and all the bristles black. Wings clear hyaline, toward the apex and posterior margin grayish.

Type.—The type of *misellus* is at the M. C. Z.

Habitat.—Mass. (July 10–Aug. 30); Conn.; N. Y.; N. J. (July 12–Aug. 18); D. C. (type, *misellus*); Raleigh, N. C. (July 15); Ga.; Fla.; Tex.; Ill.

Loew states that this species (i. e. his *misellus*) is easily distinguished from *ternata* by the smaller body, by the longer thoracic hair, and by the median stripe being always reddish anteriorly, and, finally, by the anal cell of the wing being wholly destitute of microscopic pubes. I do not put any faith in the presence or absence of microscopic pubes in the anal cell in this species, for of the twenty-four specimens before me representing captures from Massachusetts, Florida and Texas, I find that this is variable, the females being more apt to possess these pubes than the males. Loew's type is of the male sex.

LESTOMYIA.

Lestomyia Williston, Trans. Am. Ent. Soc., XI, 19, 1883.
Clavator Phillippi, see Osten Sacken, West. Dipt., 292, 1878.

Front tibiæ with a terminal curved spur. Head similar to that of *Cyrtopogon*, but smaller and narrower (narrower, also, than that of *C. punctipennis* as figured by Phillippi, l. c., pl. XXVII, fig. 29); mouth larger and more oblique; sides of the face only a little diverging below, gibbose, the pile or hairs in the middle of the gibbosity not reaching the antennæ or eyes. First joint of the antennæ subcylindrical, short, the second yet shorter, the third longer than the first two taken together, narrow at the base, and then expanded to twice or three times as wide, gently narrowed and then rounded at the tip; at the end with a minute cylindrical style, ending in a microscopic bristle. Ocellar tubercle, dorsum of thorax and edge of scutellum with stout bristles. Abdomen subcylindrical, narrow, somewhat broader at the base, male hypopygium not stouter than the abdomen; female ovipositor with a star of short spines. Legs rather strong; tibiæ and tarsi spinose; front and middle femora with a single spine on the hind side a short distance from the tip. Claws and pulvilli long. Wings like those of *Cyrtopogon;* anal cell very little open, sometimes closed; anterior cross-vein about the middle of the discal cell;

second submarginal cell considerably longer than the second posterior. All the posterior cells open, the fourth sometimes coarctate or nearly closed.

Type.—*Lestomyia sabulonum* Osten Sacken.

The above is Osten Sacken's description amended by Dr. Williston.

The most striking feature of the North American species of this genus is the tuft of bristles on the ocellar tubercle and the four longitudinal rows of bristles on the thoracic dorsum, one on either side of the median line and one over each lateral margin.

Lestomyia fraudigera.

Lestomyia fraudigera Williston, Trans. Am. Ent. Soc., XI, 21, Pl. II, fig. 5, 1884.

♂.—"*Length* 10 *mm.*—Head below only gently oblique; face distinctly longer than the front; from the ocellar tubercle to the antennæ less gibbose on the lower part; third segment of the antennæ longer, elongate, less distinctly clavate, gradually widening from the base, not three times as wide as on its widest portion. Abdomen uniformly covered with whitish-gray pubescence, leaving a row of small black spots on segments 3–6. Legs red, with broad black rings on femora and tibiæ.

Gray; face and front whitish; the mystax, pile on the inner side of the front near the eyes, and the bristles of the ocellar tubercle, all nearly white, a single black bristle on the second segment of the antennæ. Antennæ black; the first segment somewhat yellowish at the base; the third segment begins to widen from very near the base, the under surface is nearly straight, the upper side gently convex except near the base, the tip obtuse. Beard long and abundant, occipito-orbital bristles chiefly yellowish. Dorsum of thorax yellowish-gray with four brownish stripes, the middle one narrowly separated, the lateral ones consisting of two oval spots, the one before, the other behind, the suture; there are four rows of rather stout black bristles nearly equidistant from each other, the lateral ones more irregular. Scutellum in the single specimen with black bristles. Pleuræ wholly purely grayish; the fan-like row of hairs before the halteres yellowish-white. Abdomen wholly and nearly uniformly whitish-gray; on each side of the third, fourth, fifth and sixth segments near the front a small circular polished black spot; pile of the hypopygium yellowish-white. Coxæ and legs red; anterior femora with a small ring, intermediate with a broader, and the posterior pair except the base and tip, tibiæ except the broad base, tip of the posterior pair broadly, and the middle pair narrowly, black; bristles of legs white; of the tarsi chiefly black. Wings as in *sabulonum*, hyaline."

Type.—University of Kansas A single male specimen.

Habitat —Mendocino Co , Cal (O. T Baron)

I have seen a specimen of this species that agrees perfectly with the above description except that several of the occipito-orbital bristles are black

Lestomyia sabulonum (Pl X, fig 1)

Clavator sabulonum Osten Sacken, West Dipt , 292, 1877

Lestomyia sabulonum Williston, Trans Am Ent Soc , XI, 20, Pl II, fig 4, 1884

♂ ♀ —*Length* 7–11 *mm* —"Yellowish-gray, thorax with a geminate blackish stripe, abdomen with a row of longitudinal blackish spots, wings hyaline

Yellowish-gray, face whitish, with a tuft of white pile on the gibbosity, in the female with a few (I count six) black bristles above the mouth, which I do not perceive in the male, ocellar tubercle, in the female, with a tuft of stiff black bristles (I count eight), in the male these bristles are white, and the front shows on each side a similar, but smaller, white bristles, in the female the latter bristles are very thin and small Antennæ black, the first segment with white pile beneath, second segment on the under side with a couple of black bristles, occiput with yellowish bristles above, and with long soft white hair below Thoracic dorsum with a geminate brown stripe in the middle, and two broader stripes on the sides, abbreviated long before the humeri, the fan-like fringe of pile before the yellow halteres is white in the male, black in the female Abdomen yellowish-gray, with whitish-gray reflections, an ill-defined, elongated, darker spot almost reaching the posterior margin, in the middle of each segment, a similar dark spot on each side of segments 2–6, the last segment of the female polished brownish-black, in the male the hypopygium black, polished, with long white pile Wings hyaline, with hardly perceptible vestiges of brown, brown clouds on the cross-veins Legs black, femora at the base and tip, and base of tibiæ red, tarsi brownish, the spines on the tibiæ in the male are mostly white, some black bristles are perceptible on the upper side, especially on the anterior tibiæ, in the female, the bristles are black, very few white ones are visible "

Type —M C Z The type series consists of a male and female in coitu, and a second male with the body badly eaten out.

Habitat —Crafton, near San Barnardino, Cal , March, on dry, gravelly soil—type, Kern Co , Cal

The most striking feature of this species is the tuft of long bristles on the ocellar tubercle, and those on the thoracic dorsum, where they are arranged in four rows; one on either side of the geminate stripe, and one on each side of the lateral margins. The bristles of the scutellar margin, and the red bases and apices of the femora, and the bases of the tibiæ, are also striking.

Specimens in the National Museum, and in the collection of Prof. C. W. Johnson, do not have the bases of any of the femora red, thus agreeing with six females and four males from Kern County, mentioned by Dr. Williston. One of the specimens from northern California has the base of the femora and the tip of the tibia red. In the two females before me, there are no black bristles in the mystax, and the bristles before the halteres are white, and not black. Dr. Williston states that the number of scutellar bristles ranges from six to ten, so their number is of no specific value; and that the bristles of the tibiæ of the male are white, while those of the female are mostly whitish, but in part black.

TARACTICUS.

Taracticus Loew, Cent., X, 24; note, 1872.
Dioctrodes Coquillett, Proc. Ent. Soc. Wash., VI, 181, 1904.

Form of head as a whole similar to *Dioctria*, especially as regards the mystax and antennæ, but the front tibiæ with a terminal claw-like spur. Head nearly twice as broad as high: face gently convex, the oral margins not at all as prominent; mystax composed of a few weak bristles, for the most part confined to the oral margin. Antennæ (Pl. III, fig. 6) slender, elongate, segment 3 sometimes three times the length of segments 1 and 2 taken together, microscopically pubescent, beyond its center on the upper side with an emargination at the proximal end of which there is a short forward directed spine. Facial and frontal orbits nearly parallel, the latter slightly emarginate; ocellar tubercle of good size. Body of male slender, of female more robust; in each the abdomen is very convex, punctate and nearly bare. Genitalia hardly noticeable. Scutellum with two marginal bristles. Legs slender; hind tibiæ incrassate, hind tarsi very robust; front tibiæ with a terminal, though weak, claw-like spur. Marginal, submarginal, posterior, and anal cells open.

Type.—*Dioctria octopunctata* Say.

Mr. Coquillett agrees with me that *Dioctrodes flavipes*, the type species of his genus *Dioctrodes*, is a rather small specimen of *Taracticus octopunctatus*. The tibial spurs in this genus are very small, slender, and not always easily detected. I agree with Dr. Williston, who states in Trans. Am. Soc., XI, page 22, the improbability of *Ceraturgus niger* Macquart belonging to *Taracticus*.

Taracticus octopunctatus (Pl. III, fig. 6; Pl. XI, fig. 7).

Dioctria 8-punctata Say, Jour. Acad. Sci. Phil., III, 49, 1823; Compl. Works, II, 63.
Dioctria octopunctata Wiedemann, Auss. Zw., I, 365.
Dioctria octopuncta Schiner, Verh. Zool.-Bot. Ges., 1866, 675; 1867, 369.
Taracticus octopunctatus Loew, Cent., X, 24, 1872.
Taracticus octopunctatus Williston, Trans. Am. Ent. Soc., XI, 22, Pl. II, fig. 2.2a.
Dioctrodes flavipes Coquil., Proc. Ent. Soc. Wash., VI, 181, 1904.
Dioctria rufipes Jones, Tr.. Am. Ent. Soc., XXXIII, 276, 1907

♂ ♀.—*Length* 6–8.5 *mm.*—Black; halteres, femora, tibiæ except apices of hind pair, and the bases of all the tarsal segments yellow; abdomen punctate with eight white pruinose spots; all the posterior cells of the hyaline wings open. Head whitish, sometimes golden pruinose, the ocellar tubercle and sometimes the center of the face polished. Antennæ distinctly longer than the height of the head; segment 1 about one and one-half times the length of segment 2; segment 3 more than twice the length of segments 1 and 2 taken together, slender, microscopically pubescent, beyond the center on the upper side with an emargination at the proximal end of which is a short forward-directed spine; style hardly distinguishable. Thoracic dorsum with three golden pruinose stripes, the outer ones being dilated before and inclosing a dusky spot upon the humeri; pleuræ bare, together with the coxæ, grayish-white pruinose, somewhat browner immediately below the dorso-pleural suture. Abdomen black, polished, punctate, with a silvery white spot on the posterior lateral angles of segments 2–5: tip of male abdomen, including the genitalia, red. Legs slender, the hind femora with two long slender bristles beneath near the base, the tibiæ with more numerous but similar bristles. Hind femora are sometimes in part black. All the bristles and pile of the entire body and legs pale. Wings hyaline, violaceous, all the posterior and anal cells open.

Type.—Lost. The type of *Dioctrodes flavipes* Coquillett is at the U. S. N. M., Cat. No. 7953.

Habitat.—Atlantic States (Osten Sacken); White Mts., N. H.; Mass.; Conn.; N. Y. (June 20); N. J. (Aug. 23); Pa. (July 20); Fla.; Mo. (June 19); Ohio.

This is a small species of rather variable size; the female is often noticeably larger than the males. It is the only representative of this genus now known from the United States.

COPHURA.

Cophura Osten Sacken, Biologia, Dipt., I, 181, 1887.
|| *Blax* Loew, Centur, X, 24, 1872.
|| *Blacodes* Loew, Berl. Ent. Zeit., 1874, 377.
|| *Loewiella* Williston, Manual N. A. Dipt., p. 57, 1896.
Cophura Williston, Biologia, Dipt., I, 314, 1901, note and list of species.

"Head as in *Nicocles*, disciform, with prominent eyes; face very slightly convex, almost flat; mystax composed of a row of a few bristles placed at a short distance above the oral edge, and a second, still smaller, row upon the edge itself; the rest of the face microscopically pubescent; ocellar tubercle salient, and with four moderately long bristles, the front pair the shortest; occipital bristles rather weak. Antennæ: first segment subcylindrical, the second subconical and nearly of the same length, the third segment about the length of the first two taken together, or a little longer, sublinear or elongate-elliptical, with a short subfusiform style ending in a short, bristle-like point. Thorax gibbous, like that of *Nicocles;* the usual bristles present—three præsutural, and a number of weak præscutellar, but none on the scutellum (in *Nicocles* there are two). Abdomen rather flat, smooth, without punctures; ending in the male in a protruding forceps, and in the female in the ovipositor, bearing a coronet of spinules. Legs as in *Nicocles*, of moderate length and strength, with rather weak femora and straight tibiæ. Wing shorter and broader than in *Nicocles;* first and fourth posterior cells broadly open, anal cell closed near the margin."

"This new genus belongs to the group of Dasypogoninæ with a hook at the end of the front tibiæ, and is allied to *Nicocles*, which it resembles in the coloration of the thorax and the legs. The abdomen, however, is flatter, and not expanded in the male as in that genus; the third joint of the antennæ is shorter, less linear and with a stouter and shorter style; the wings are comparatively shorter and broader, the venation similar and the scutellum without macrochætæ.

"*Cophura* has something of a *Holcocephala* in its general appearance and coloring and might, at first sight, be mistaken for a species of that genus, but the head is much narrower and the eyes less projecting."

Dr. Williston in the Biologia, in commenting upon this genus says:—

"In his remarks on *Cophura* (i. e., the above) Osten Sacken says that 'the description of the antennæ and of venation proves *Blacodes* (Blax olim) to be a different genus;' the only difference in the venation is the more coarctate fourth posterior cell, which certainly is not a character of generic value. The antennæ of *Blacodes* have slender elongate style—'stylo terminali lineari, acuto, anticulis duobus primis simul sumtis breviore;' in the three species before me the style is short, but it may be slender, ending in a bristly point. The characters of *Cophura*, pretty nearly as Osten Sacken defines them, are brought out in my remarks on *Nicocles scitulus Williston, and Apharmartania fur Williston;* apparently Osten Sacken overlooked the description and figure of these species. *Blacodes cristatus* Coquillett, moreover, has the style 'slender, slightly over one-half as long as the third segment.' Taking all these facts into consideration, the differences between *Cophura* and *Blacodes* wholly disappear. Furthermore, the type of coloration is markedly alike in *Blacodes bellus* and *Cophura humilis*, which has a short style. On the other hand, there is a distinct type observable in the remaining forms—a blue-black abdomen, with white pollinose markings.

"The following species belong to the genus *Cophura* as understood by me :—*C. bella* Loew, Texas; *C. scitula* Willst., Washington; *C. fur* Willst., Arizona; *C. clausa* Coquillett, California; and *C. pulchella*, Willst.; *C. humilis* Willst., and *C. sodalis* Osten Sacken, Mexico. *Taracticus brevicornis* Willst. also agrees in all respects save that the abdomen is lightly punctate."

I have included both Osten Sacken's and Dr. Williston's remarks because I firmly believe that the genus *Cophura* as it stands, is more or less of a repository for small Asilids of this subfamily that have the front tibiæ armed with a terminal claw-like spur and do not fit into any of the other genera. There is a vast difference between *sodalis*, for which Osten Sacken erected this genus, and *cristata*, which looks quite like some species of *Cyrtopogon*. Osten Sacken is quite right when he says that *sodalis* has somewhat the appearance of *Holcocephala*. None of the other species now contained in *Cophura* have such a look. Until more material is in collections, I believe that less harm will be done by leaving the genus as it now is. Personally I believe that *sodalis* is distinct from the other species now in the genus. To my knowledge, the only material of this genus in American collections is the type specimens except in the case of *cristata* and *fallei*.

SYNOPSIS OF SPECIES

1. Thoracic dorsum with a very pronounced crest of hair (Pl. VIII, fig. 5) extending along the medain line .. 2.
Thoracic dorsum without such a crest 3.

2. Scutellum with four marginal bristles **cristata.**
Scutellum with many marginal bristles .... .. **fallei.**

3 **brevicornis, clausa, fur, scitula, trunca.**

Cophura cristata.

Blacodes cristatus Coquillett, Can. Ent., XXV, 33, 1893.

Cophura cristata Jones, Tr. Am. Ent. Soc., XXXIII, 280; 1907

"♀.—*Length* 11 *mm.*—Wholly black, the tibiæ slightly piceous. Head light gray pruinose, that in the middle of the front dark brown; face moderately convex, mystax black and white, very dense and extending nearly to the antennæ; first segment of antennæ slightly longer than the second, third segment lanceolate, three times as long as the second segment; style slender, slightly over half as long as the third segment. Thorax very convex, gray pruinose and marked with a broad blackish-brown geminate median stripe, which is considerably dilated outwardly behind the middle; on each side of the stripe is a broad, irregular blackish-brown stripe extending but little in front of the middle of the dorsum; the median brown stripe bears numerous black and light yellow pile, which, on the anterior portion, forms a nearly erect crest; bristles of thorax black and light yellow; pleura mottled light gray and dark brown pruinose, the pile white; the fan-like row of bristles in front of the halteres is white. Scutellum brown pruinose and densely white pilose, the four marginal bristles black. Metanotum polished black, a large silvery-white spot on each side. Abdomen polished, bluish-black, marked with light gray bloom, as follows: a spot on the sides of the first segment, a transverse anterior and two posterior lateral oblique spots on each remaining segment, the anterior spot obsolete on the last two segments, the posterior spots uniting with the gray lateral margin except on the second segment, each extending obliquely inward from the posterior angle of the segment, and reaching at least a third of the distance across the segment, those on the sixth segment united; pile of dorsum very short, sparse, depressed, mostly light yellowish, that of the sides and venter longer and white. Pile of legs white, the bristles light yellow; front and hind tibiæ and their metatarsi densely bright yellow pubescent within, spur of front tibiæ rather slender, middle tibiæ also furnished with a strong, nearly straight black spur at the tip within. Wings pure hyaline, the extreme apex gray, a large brown cloud on veins at bases of the first and second submarginal cell, of each posterior cell and on the discal cell. All the posterior and anal cells open, second submarginal cell destitute of a stump of a vein. Halteres black."

Type.—U. S. N. M., Cat. No. 10,426. A single female specimen.

Habitat.—Ventura Co., Cal. (April).

Cophura fallei n sp. (Pl. VIII, fig 5).

♂ ♀.—*Length* 10–12 *mm*—Wholly black; face and occiput grayish; front and thorax more brownish pruinose; abdomen polished black, segments 2–6 with posterior lateral angles grayish pruinose. Wings mainly hyaline with brown clouds at the furcation of the second and third longitudinal veins, furcation of third vein, at base of the discal cell and base of the second and third posterior cells. *Thoracic dorsum along the middle from prothorax to scutellum with a very prominent crest of long black hair; scutellum above clothed with fine whitish pile and on the margin with a fringe of many long black hair-like bristles.*

Face rather weakly gibbose, mystax deep black, reaching nearly to antennæ; pile of front long, erect, sparse; of the ocellar tubercle more abundant, longer and prominent; on both, black or brownish. Pile of occiput brown, the beard grayish. Proboscis and palpi small. Antennæ wholly black, the basal segments with brownish hair and bristles: segments 1 and 2 cylindrical, segment 3 elongate, but hardly twice as long as the basal segments, style slender, hardly more slender at base than tip of third segment, about one-half as long as the third segment and terminated by a fine bristle. Weak bristles on sides of thoracic dorsum brownish, the pile scarce and grayish; pile of pleuræ long, fine, located in tufts on the posterior portion of the mesopleuræ and before the halteres. Halteres blackish. Abdomen polished, the posterior angles of segments 2–6 grayish pruinose, the grayish pile confined chiefly to the sides and venter Legs wholly black, wholly grayish pilose and with weak bristles fore tibiæ with a terminal claw-like spur, the middle tibiæ with a stout spine at tip, claws black Wings nearly hyaline, with clouds as above mentioned All the marginal and submarginal cells wide open, the anal cell open the anterior vein beyond the middle of the discal cell

Type—Type series consists of three females and three males, co-types, located as follows two females in the collection of Prof C W Johnson, two males in the collection of Massachusetts Agricultural College, and one male and one female in the collection of the Colorado Agricultural College

Habitat—Denver (Apr 20), and Ft Collins (March 22, April 30), Col , Montclair, Cal

Mr Coquillett's *cristata* and *fallei* are very similar, but the bristles of the scutellar margin will at once separate them, as *cristata* is described as having four, while *fallei* has many, bristles I believe that it is to this species that Mr Jones refers in Trans Am Ent Soc , Vol XXXIII, page 280

Cophura bella.

Blax bellus Loew, Cent , V, 24, 1872

♂ ♀ —*Length* 6–9 8 *mm* —♂ —Reddish species the face and front and two large spots (when viewed from before) on the thoracic dorsum between the geminate stripe and the humeri, silvery white pruinose Abdomen and legs reddish wings dark, with a clear spot on the outer costal margin

Face and front as above, wholly bare, mystax, pile on basal segments of the black antennæ, ocellar tubercle and occiput, yellowish white Occiput grayish yellow pruinose except on occipital orbits where it is white Proboscis black first segment of antennæ cylindrical, second segment shorter, more rounded, third segment some longer than the basal segments taken together, fusiform, style rather thick, tapering to a point, about one-half the length of the third segment Thorax obscured with brownish bloom dorsum with geminate median stripe, indistinctly divided, and the two lateral stripes broad, much abbreviated before and behind and subdivided by bloom at the transverse suture, brownish-black two silvery spots on anterior portion of the dorsum as mentioned above, very distinct when viewed from before Pleuræ densely brownish pruinose, front coxæ and spot above and a similar spot above the hind coxæ, whitish pruinose The very sparse pile and bristles reddish-yellow There are two scutellar bristles Halteres yellow Abdomen polished red, rather slender from the second segment to tip, the lateral margins and venter are white pruinose. Legs reddish; all the femora dark on the outer posterior side; the front and middle pairs more so. All the tibiæ and tarsal segments darker toward tips, with pale yellowish pile and reddish bristles. Wings narrower than in *C. sodalis* Osten Sacken, brownish, much darker on costal margin than on outer margin; toward the apex on the anterior margin is a small white spot.

♀.—Like the male, but face is grayish-white pruinose; front deep brownish; there are no silvery-white spots on thorax, and the wings are not as uniformly brown but present a more mottled appearance. The costal margin is still much darker and the white spot is present, but all the posterior, anal, axillary and discal cells, and the base of the second submarginal and second basal cells are also much paler.

Type.—M. C. Z.

Habitat.—Texas (Belfrage).

? Cophura brevicornis.

Taracticus brevicornis Williston, Trans. Am. Ent. Soc., XI, 22, Pl. II, fig. 3. 1884: XII, 54, refers to *Aphamartania.*

? *Cophura brevicornis* Williston, Biologia, Dipt., I, 314, refers here with a doubt.

"♂ ♀.—*Length* 7–9 *mm.*—Antennæ short, about as long as the distance from antennæ to oral margin; style distinct, acute, terminating in a microscopic bristle; legs brownish-red, blackish toward the tips of tarsi; abdomen polished black, with a white spot on the posterior angles of the second, third, fourth and fifth segments.

Front and face silvery-white, the bristles on the oral margin, ocelli and the finer ones along the lateral margins of the front black. Face broader than in *octopunctatus*, being very nearly square, the distance from antennæ to oral margin scarcely greater than that between the eyes. Antennæ black, the first two segments with black bristles below; short, not as long as the height of the head; first segment a little longer than the second; third segment slender, not more than twice the length of the first two taken together; style rather slender, not as long as the second antennal segment, terminating in a microscopic bristle. Dorsum of thorax thickly covered with brownish ochraceus bloom, with two very indistinct darker, brownish median stripes in front. Pleuræ gray pruinose. Abdomen of equal width, gently convex above, black, polished, lightly punctate, the posterior angles of the second, third, fourth and fifth segments with a small quadrate silvery spot, the narrow anterior margins of the same segments less distinctly whitish-silvery. Legs brownish-red, all the tarsi reddish-brown, blackish at tips. Wings like those of *T. octopunctatus*, nearly pure hyaline."

Type.—University of Kansas. Two specimens.

Habitat.—Washington.

At the time of publication of this species, Dr. Williston adds the following remarks:—This species is, I believe, a *Taracticus*, although it has some of the characters of *Blacodes.* In size and appearance it is strikingly like *T. octopunctatus*, and with the exception of the head, the structure is almost precisely the same, and the coloration nearly so. The head and antennæ, however, appear to be those of *Blacodes* or *Nicocles.* The small cross-veins of the wings in one specimen is nearer the end of the discal cell, as it is in *Blacodes;* unfortunately in the other specimen it is near the middle, as in *T. octopunctatus.* The only characters that I can understand for *Blacodes* now, are: Abdomen smooth, not clavate, thorax a little more gibbose, third segment of antennæ perhaps more fusiform, fourth posterior cell of wing nearly closed and the wings with dark markings.

Cophura clausa (Pl. XI, fig. 7).

Blacodes clausus Coquillett, Can. Ent., XXV, 34, 1893.

"♂ ♀.—*Length* 7–9 *mm.*—Differs from *truncus* only as follows: In the female the bloom on the abdomen is much more extended, covering nearly the entire dorsum, but in the male it is confined to the anterior end of the sides of each segment, that on the sides being greatly dilated inward at the posterior corner of each segment. Base of second submarginal cell destitute of a stump of a vein; anal cell closed and short petiolate; brown clouds of wings obsolete or wanting."

Type.—U. S. N. M., Cat. No. 929. Three males and six females.

Cophura fur (Pl. XI, fig. 6).

Aphamartania fur Williston, Tr. Am. Ent. Soc., XII, 53, 1885.

"♂.—*Length* 6–5 *mm.*—Small, black, thickly white pruinose. Head and antennæ in structure like those of the species of *Nicocles*, except that the vertex is not so deeply excavated on the sides of the ocelli. Face and front with a silvery-white pubescence, the former otherwise bare, except a thin row of white hair on the oral margin and the latter with a few white hairs. Antennæ black, slender. Thorax thickly white pruinose, bare, except the weak white bristles; dorsum with two slender brown median stripes, and two small, less definite brown spots on each side, the one before, the other behind the suture. Abdomen rather short and slender, a little broader at the base, not flattened or expanded distally, polished bluish-black; the venter and posterior angles above, not reaching quite across behind on the posterior segments, white pruinose like the thorax; hypopygium thickened, of moderate size, white pruinose. Legs black, rather thinly clothed with white pile and bristles; hind tibiæ rather stout, in structure like those of *Nicocles scitulus* Williston. Wings hyaline, faintly yellowish tinged on outer half; first longitudinal vein and costa, beyond the tips of the axillary, a little thickened."

Type.—University of Kansas. A male specimen.

Habitat.—Arizona (Prof. Comstock).

The type specimen, which I have photographed, had already lost a portion of its antennæ before loaned me by the University of Kansas.

Cophura scitula.

? *Nicocles scitulus* Williston, Trans. Am. Soc., XI, 19, Pl. II, fig. I, Ia, 1884.

"♀.—*Length* 5.5 *mm.*—Wings hyaline with small brown spots; abdomen polished black with a pruinose spot on the posterior angles of segments 1–5; posterior tibiæ scarcely thickened at the tip.

"Black. Head and antennæ black; face rather thickly whitish pubescent with sparse, obscure, yellowish pile, black on the oral margin. Third segment of antennæ a little broader at its base. Front more polished, a little yellowish pruinose. Lateral orbits white pruinose; beard white. Dorsum of thorax and scutellum but little polished, rather thickly brownish pruinose, with two linear median indistinct stripes, one each in front a whitish pruinose spot and more exteriorly in front of wings a larger more yellowish spot. Pleuræ, coxæ and sides of metanotum thickly whitish pruinose; disk of metanotum polished Abdomen bare, smooth, polished, bluish-black, in structure and markings like *Nicocles;* broadest at tip of fourth segment; on the posterior angles of the first segment with a small whitish pruinose spot, which becomes successively a little larger on the second, third and fourth segments, but smaller on the fifth. Legs black; thinly whitish pilose and with light colored bristles; hind legs only a little elongate, of equal thickness throughout; the tibiæ not thickened at tip, but gradually, and only moderately so, from the base; the tarsi only slightly thickened. Wings not elongate, fourth posterior cell wide open; hyaline, at distal ends of the first and second basal and discal cells, and base of the submarginal cells with small brownish clouds."

Type.—University of Kansas. A single female.

Habitat.—Washington (H. K. Morrison).

Placed at first by Dr. Williston under *Nicocles* with the following remarks:—This species will require the male to determine its correct place. I doubt that it is a *Nicocles.* The wings are like *Taracticus*, the hind legs are shorter, stouter, and not clubbed, the tarsi but slightly thickened; the abdomen is quite smooth, as in *Nicocles*. With *T. brevicornis* it forms a connection between *Taracticus*, *Blacodes*, and *Nicocles*, and they both might perhaps be better placed under *Blacodes*, which would then be distinguished from *Taracticus* by the presence of a terminal style, and from *Nicocles* by the structure of the male abdomen, should this species be found not to possess the silvery markings, as I suspect.

Cophura trunca.

Blacodes truncus Coquillett, Can. Ent., XXV, 34, 1893.

"♂ ♀.—*Length* 9 *mm.*—Same as *cristatus* with these exceptions: Tibiæ, extreme apex of femora and base of each segment of tarsi yellow. Bloom of front, light gray; mystax very sparse, white; third segment of antennæ almost linear, nearly four times as long as the second. Thorax destitute of a median crest of pile, scutellum not densely pilose, bearing only two marginal bristles; metanotum uniformly gray pruinose, destitute of silvery spots. Bloom of abdomen, consisting of an anterior cross-band on each segment, dilated each side so as to reach the posterior angle of the segment. Brown clouds on wings very faint; base of second submarginal cell furnished with a long stump of a vein. Halteres yellow."

Type.—U. S. N. M., Cat. No. 930. Two male and two female specimens.

Habitat.—Los Angeles Co., Cal.

NICOCLES.

‖*Pygostolus* Loew, Cent., VII, 28; 1866; X, 24, 1872 (note.)
‖*Pygostolus* Schiner, Verh. Zool.-Bot. Ges , XVI, 846, 1866.
Nicocles Jaennicke, Neue Exot. Dipt., 57, 1867.
Nicocles Loew, Berl. Ent Zeit., 1874, 377 (note.)
Nicocles Williston, Trans Am Ent. Soc., XI, 16, 1884.
Nicocles Coquillett, Can. Ent , XXV, 119, 1893; table of species.

Front tibiæ with a terminal claw-like spur, all the posterior cells of the wing open, and the abdomen (Pl. I, fig. 8) of the male long, unusually depressed, with only six segments apparent when viewed from above. The male abdomen from the base of the third segment to the tip of the fifth gradually expanding in width; the fifth and sixth segments very flat, always silvery-white pruinose, and on each side with about five more or less distinct punctures arranged in oblique rows of two or three each; the seventh and eighth segments very obscure, retracted within the sixth segment and, together with the small hypopygium, not visible from above. Head very much broader than high, face and front broad, of nearly equal width, the front not widening above, the face only gently convex, and but with little protuberance below. Oral margin clothed with not dense bristly hair, the face above with fine sparse pile reaching nearly to the antennæ. Antennæ (Pl. IV, fig. 4) rather short; first two segments very short, the first always a trifle longer than the second, the third usually slender, about twice as long as the basal segments, and bearing a terminal more or less bristle-like style which is of variable length. Vertex moderately depressed, ocellar tubercle large. Thoracic dorsum strongly arched; the scutellum much as in *Dioctria* Thoracic dorsum clothed in all the species with sparse, inconspicuous hair on the middle, on the lateral and posterior portions with weak bristles Scutellum with two very weak, almost hair-like bristles, on the posterior margin. and above clothed with fine silky pile directed backward Abdomen in both male and female much depressed; in the female more convex, and the eight segments appear normal, the last bearing the ovipositor with its terminal circlet of spines; in the male as above described, the fifth and sixth segments are always very broad and flat, the fifth being subject to some variation in proportion between its width and length. Hind tibiæ thickened at tip, and the hind tarsi considerably stouter than the anterior pairs; pulvilli normal. Wings rather long, more or less marked and spotted with brown or black; all the posterior and submarginal cells wide open, the anal cell only slightly so.

Type.—Pygotolus argentifer Loew, now a synonym of *Dasypogon politus* Say.

I regret that I have had so little material of this genus with with which to work and make descriptions.

SYNOPSIS OF SPECIES.*

1. Third and fourth abdominal segments wholly black 3.
   Third and fourth abdominal segments largely or wholly red .. 2.
2. Body red, a black spot on the second abdominal segment **rufus.**
   Body black, abdominal segments 3–6 largely red **abdominalis.**
3. Antennal style one-half as long as the third segment 4.
   Antennal style only one-fourth as long as the slender third segment; Eastern species **pictus.**
4. Fifth abdominal segment in the male more than three times as wide as long 5
   Fifth abdomenal segment in the male less than three times as wide as long; California species 6.
5. Inhabits the Atlantic States **politus.**
   Inhabits California . **dives.**
6. Brown spot at tip of wing not crossing the first and second posterior cells; hind tibiæ and tarsi of the male densely silvery within **argentatus.**
   Brown spot at tip of wing crosses the first and second posterior cells; hind tibiæ and tarsi of the male not silvery. **æmulator.**

Nicocles abdominalis.

Nicocles abdominalis Williston, Trans Am. Ent Soc, XI, 17, Pl. I, figs 14, 14a, 14b, 1884

"♂.—*Length* 11–12 *mm.*—Black, moderately polished; the third, fourth, fifth and sixth abdominal segments, except the narrow lateral margins, yellowish-red; fifth segment about four times broader than long Wings variegated with dark brown.

"Head much broader than high, much flattened, the face scarcely more than one-fourth the entire width, the inner margins of the eyes nearly parallel throughout. Face flattened, but very slightly projecting in profile below, black, somewhat polished, whitish dusted below, a row of brown bristles along the oral margin, intermixed with sparse long whitish pile, which extends upon the face nearly to the antennæ. Front more opaque black; the bristles on the ocellar tubercle brown or blackish. Antennæ black; the first two segments with blackish hairs; first segment a little longer than the second, the latter short; third segment nearly twice as long as the first two combined, slender, of nearly equal width throughout; style divergent, rather slender, acuminate, less than half as long as the third segment, terminating in a microscopic bristle. Occipito-orbital bristles brown, pile below soft, white, rather long and abundant. Dorsum of thorax black, with two broad, velvety opaque black stripes, narrowly separated by a slightly

---

* As I have had very little material in this genus for study, I am using Mr. D. W. Coquillett's key, partially modified, which appeared an the *Canadian Entomologist*, vol. XXV, 119; 1893.

grayish stripe in front, confluent behind; the rather short and weak bristles above the wing, in front of, and on the suctellum, dark brown. Pleuræ thickly gray pubescent. Abdomen: first two segments polished black; third and fourth bright yellowish-red, very narrowly black along the lateral margins; fifth and sixth of the same color, but more broadly black on the sides, brilliant silvery when viewed from in front, less intense and finally not apparent when seen from behind. The first three segments are parallel on the sides, of nearly the same width as the thorax; from the beginning of the fourth to the tip of the fifth, the sides are nearly straight, but divergent, so that at the tip the abdomen is fully one-fourth wider; sixth segment convex behind. The abdomen is bare, except the sparse, very short, recumbent hairs, very much flattened, especially at the tip, the sixth segment projecting eave-like much beyond the hypopygium, which is small and retracted. Legs rather slender, the tibiæ and tarsi spinose, but not strongly so; hind femora slender, elongate, a little thickened just before the tip; hind tibiæ elongate, slender on the basal two-thirds, much thickened, club-like at the end; hind tarsi much thickened, especially the first segment, which in length is little less than the three following together. In color the legs are deep pitchy black, on the under side of the femora, and sometimes the tibiæ, also deep red; bristles and pile mostly white, wings elongate, all the posterior cells open; blackish, the third, fourth and fifth posterior cells chiefly, the anal cell wholly, the basal cells in part, the costal cell except the tip, and slender spots along the veins opposite the distal part of the first vein, hyaline."

Type.—University of Kansas. Two males.

Habitat.—California (type).

I have never seen this species.

Nicocles æmulator.

Pygostolus æmulator Loew, Cent., X, 25, 1872.

Nicocles æmulator Howard, Insect Book, 1902, Pl. XIX, fig. 4.

♂.—*Length about* 9 *mm.*—Translation.—Black; the last two abdominal segments silvery-white pruinose, the fifth segment twice as broad as it is long; wings beautifully variegated with black, the third basal hyaline; third segment of the antennæ hardly twice the length of the style.

Very much like *dives*, but distinguished by a longer abdomen, less dilated toward the apex, so that while the fifth segment of *æmulator* is double the length of its breadth, that of *dives* is four times as wide as long. Besides the mystax is denser, longer, and more obscure (probably refers to color) than in *dives*. It differs from *pictus* in having the third antennal segment less slender and the terminal style longer.

Type.—M. C. Z.

Habitat.—California (type).

The wings are less black than in *dives*. The black areas are not as extensive and not as dense. The female differs from the female of *dives* in not possessing the pronounced broad whitish pruinose bands along the lateral margins of the dorsum which are so noticeable in *dives*.

Nicocles argentatus.

Nicocles argentatus Coquillett, Can. Ent., XXV, 119, 1893.

"♂.—*Length* 8–10 *mm*—Black; the tibiæ and apex of the sixth, and sometimes of the fifth, abdominal segment, red. Front grayish-brown pruinose; face nearly flat, white pruinose and sparse whitish pilose; mystax on oral margin consisting of a few long yellowish hairs interspersed among about fourteen stout yellow bristles; pile of palpi and of occiput white, bristles of the latter yellow. First segment of antennæ slightly longer than the second, the third one and three-fourths times as long as the first two taken together, of nearly equal width, the style nearly half as long as the third segment. Thorax marked with a broad median black stripe not extending on the posterior fourth, and on each side of it is a large brown pruinose spot divided by the suture and bounded in front by a black spot, also a brown spot on the humeri; elsewhere the bloom is grayish-white; the pile very sparse, white; the bristles brown; pleuræ brown pruinose in front, grayish-white pruinose behind; the fan-like row of hairs in front of the halteres white. Scutellum brown pruinose, a black spot at the base on each side; bearing two brown bristles. Abdomen smooth, sparse grayish-black pruinose, that at the base and sides of segments 2 to 4 gray, the fifth and sixth segments wholly silvery pruinose; second segment longer than wide, others wider than long, the fifth being two and one-half times as wide as long; venter gray pruinose and with median brown pruinose stripe, its pile and that of the legs white, the bristles of the latter white and yellowish; hind tibiæ within, and the under side of their tarsi, densely silvery-white pruinose and pubescent. Wings hyaline; an indefinite pale brown spot extends from the tip of the axillary vein to the base of the fifth posterior cell, darkest in the marginal and interrupted in the first submarginal cell; a second brown spot covers the veins at bases of the first, second and third posterior cells; a scarcely apparent brown spot at base of second submarginal cell, and a large one filling apices of the marginal, first and second submarginal, and of the first posterior cell, extending from one-half to three-fourths the distance from the tip to the base of the second submarginal cell, and sometimes connected with the first-mentioned brown spot by a brown streak extending through the middle of the marginal cell; all the posterior cells open, the anal cell closed."

"♀.—Same as the male, except that the apices of the fifth and sixth abdominal segments are never red, the bloom covering these segments is never silvery, and the hind tibiæ and tarsi are destitute of silvery bloom and pubescence."

Type.—U. S. N. M., Cat. No. 928. Type series consists of nine males and eight females.

Habitat.—Los Angeles and San Bernardino Counties, Cal. (April).

Nicocles dives.

Pygostolus dives Loew, Cent., VII, 29, 1866.

♂ ♀.—*Length* 8.4–13 *mm.*—Translation.—Black; last two segments of abdomen of male silvery-white pruinose; wings beautifully variegated with black, third basal cell hyaline; third antennal segment a trifle more than twice as long as the style. Fifth abdominal segment of the male about four times as wide as it is long.

♂.—Black; head of uniform color; lower margins of the face whitish pruinose; mystax thin, white, the bristles on the oral margin stout, reddish-brown. Antennæ black; terminal style almost equal to half the length of the third segment. Thoracic dorsum black, oqaque, with obsolete stripes. Abdomen metallic black, polished, the spots on the lateral margin very small, whitish pruinose; the fifth and sixth segments wholly silvery-white pruinose. Legs brown or reddish-brown, femora largely black. Wings varied with black, the basal third excepting the extreme base and the anal cell, hyaline.

♀.—Thoracic dorsum brownish-black pruinose, the (indistinct) median line abbreviated (posteriorly and divided by a line of light bloom), the lateral margins broadly grayish, and the scutellum grayish. Lateral spots of the abdomen larger than in the male, the last segment not pruinose. Wings hyaline with the transverse veins bordered with black, so that the posterior median fascia is more dilutely marked, the broad border of the apex, and the four spots between are black. In other respects the female agrees with the male.

Type.—M. C. Z.

Habitat.—The Geysers, Cal. (Osten Sacken, May 5–7); Seattle, Wash. (June 4).

The female wing is black, as follows:—Extreme base, middle of costa and becoming less so in a band extending across to the posterior margin, the tip of wing broadly, and four spots, one on the anterior, and two on the posterior crossveins, and one at the furcation of the third longitudinal cell. These spots show up well in the hyaline space between the median and apical black bands. The anal cell of the male wing is blackish, and the bristles of the body are reddish-brown.

Nicocles pictus.

Pygostolus pictus Loew, Cent., VII, 30, 1866.

? *Dasypogon amastris* Walker, List, II, 362, 1849.

♀.—*Length* 10.6 *mm.*—Translation from Loew.—Black; wings beautifully variegated with black, basal and third hyaline; third segment of antennæ slender, brownish, four times as long as the style.

From a female of *Pygostolus* (*Nicocles*) *dives*, to which it is very much alike, the female *pictus* is distinguished by the following marks. The antennæ are a little longer, the third segment is much more slender, brownish, toward the apex mostly reddish, and the style much shorter. The thorax is much more convex, more broadly bordered with gray on the dorsum. The wing-picture is very much the same, but less obscure.

The description of Walker's *amastris* is as follows:

"Black, polished, clothed with white pile, abdomen fulvo-pilose, the apex obscurely reddish; antennæ black; legs reddish, tarsi darker, hind tibiæ subarctate, hind tarsi broad, wings subcinereus, and subfasciate with fuscous.

"Body black, polished: head a little broader than the thorax, dull and punctured above, with a row of tawny bristles on the clypeus; clothed behind and beneath with white hairs, a little broader than the thorax: there are a few tawny hairs on the ocellar tubercle; proboscis black, its tip clothed with short tawny hairs Antennæ black, not longer than the head; segments 1 and 2 short, of equal length, clothed with short tawny hairs; segment 3 red, linear, darker at the tip, full twice the length of the first two segments taken together; style spine-shaped, dark red, slender, black at tip, about one-third the length of the third segment. Eyes red, divided into two regions; the inner part small, flat, composed of large facets, which, however, successively decrease in size as they diverge to the outer part, which is convex, composed of small facets, and much larger than the inner part, which it half encircles. Chest and breast finely punctured, thinly covered with white hairs; the former having also a few long tawny hairs on its posterior part. Abdomen thin, increasing in breadth, from base to the tip, full twice the length of the chest; segments 1–2 very short, the third and following to the sixth, long; the seventh and eighth dull, flat, large, very finely punctured, with no hairs; the seventh slightly red on the hind border and on the side borders, having on each side five large punctures disposed by twos and threes in two oblique rows; on the eighth segment the red overspreads more of the surface and it has on its side three more indistinct punctures which are arranged in a more oblique row; venter dull, punctured; segments with a rim on each side; the last segment with red on the hind border, and more slightly so on each side border. (I believe that Walker has counted the first two segments of the abdomen as four; the seventh and eighth in this description really refer to the fifth and sixth.) Legs red, clothed with short tawny hairs, hips black; tibiæ beset with some longer tawny hairs, feet pitchy, and armed with bristles; hind tibiæ slightly curved and club-shaped; hind tarsi rather broad. Wings narrow, slightly gray; each with two large brown spots, one on the middle of the fore-border, the other at the tip of the wing, and they descend into the disk along the borders of the cross-veins, the hind border about the tip is brownish-gray, with a colorless streak on each areolet; wing-ribs and veins black; poisers tawny. Length of body 4½ lines; of wings, 9 lines."

Type.—M. C. Z. (*pictus*). That of *Dasypogon amastris* is at the British Museum.

Habitat.—N. J. (Smith Cat.); D. C. (type, *pictus*); Ga. (type, *amastris*); St. Augustine, Fla. (C. W. Johnson).

According to Prof. Johnson, this is a fall species. He has taken it in Georgia in October. The male wing is much as in *dives* and *æmulator*. Legs almost wholly reddish, but the tarsi darker toward the tip. The female has a velvety black stripe on the thoracic dorsum divided by a distinct, rather golden pruinose stripe. This is less distinct in the male and female of *dives* and *æmulator*.

Nicocles politus.

Dasypogon politus Say, Jour. Acad. Sci. Phil., III, 52, 1822; Compl. Works, II, 65.
Dasypogon politus Wiedemann, Auss. Zw., I, 405, 1828.
Dasypogon politus Walker, List. VI, 421, 1854.
Pygostolus argentifer Loew, Cent., VII, 28, 1866.

♂ ♀.—*Length* 8–10 *mm.*—Black; fifth and sixth abdominal segments silvery-white pruinose; tibiæ and tarsis usually reddish; wings hyaline on basal third, the outer two-thirds darkened in various degrees. Female like male, only the abdomen is normal and the lateral margins of all the segments are whitish pruinose, the fifth and sixth segments without the silvery bloom found in the male. Atlantic States species, usually appearing in the spring of the year.

♂.—Face grayish pruinose, the front brown; the fine bristles of the mystax on the oral margin yellowish-brown, the pile higher up on the face and the beard, very fine and white; hair of ocellar tubercle and the occipito-orbital bristles yellowish. Antennæ black, the third segment sometimes with a reddish tinge; the first segment slightly longer than the second; the third not quite twice as long as the first two taken together, of nearly equal width throughout; style a trifle over one-half as long as the third segment. Palpi and proboscis black. Thoracic dorsum more or less velvety black, showing only traces of stripes; however, this is variable, as in one specimen there are two rather ill-defined dark median stripes, separated by a grayish line anteriorly, and abbreviated without coalescing behind the transverse suture; the lateral and posterior margins of the dorsum, the scutellum and the pleuræ and the coxæ, grayish-white pruinose, the pile of pleuræ and scutellum fine and white; the weak bristles before the halteres, on the sides of the dorsum and the two on the scutellar margin, yellow or brownish. Abdomen polished bluish-black, sparsely clothed with inconspicuous appressed yellowish hair above, and on the sides of first two segments with longer white pile; the fifth and sixth segments silvery-white pruinose, showing on their sides rather indistinctly two short rows of two or three punctures each; lateral margins, especially the anterior portion, of the segments, grayish pruinose; venter brownish pruinose, spotted or streaked with white bloom. In shape the abdomen is nearly of equal width to tip of the second segment; thence evenly increasing in width to tip of the fifth; the sixth segment is indistinctly narrower than the fifth, and from above wholly conceals the small seventh and eighth segments and the hypopygium, which are retracted more or less within it. The fifth segment is fully three times as wide as long. Femora usually black, though sometimes tinged with red; tibiæ and tarsi reddish-brown with white or yellowish hair and brownish bristles. Basal third of wings, except extreme base, pure hyaline, the outer two-thirds blackish in varying degree, darkest along the costa, on the veins at the bases of all the posterior cells and at the furcation of the third longitudinal vein; on the costal margin near the middle of the outer two-thirds there is usually a hyaline spot. All the posterior and the submarginal cells open; anal cell narrowly open or closed on the margin. The black of the wings is variable and sometimes extends over into the basal third.

♀.—Similar to male, but the abdomen not expanded distally; all the segments on the lateral margins grayish pruinose; the fifth and sixth segments without the silvery bloom present in the male.

Type.—Lost (Say). The type of *Pygostolus argentifer* is at the M. C. Z.

Habitat.—Atlantic States, being reported from Mass. (Osten Sacken); Clementon (Apr. 15, C. W. Johnson), N. J.; Pa.; Md.; and Tifton (C. W. Johnson), Ga.

Prof. C. W. Johnson says that this is a spring species, while *pictus* appears in the fall of the year.

Nicocles rufus (Pl. X, fig. 2).

Nicocles rufus Williston, Trans. Am. Ent. Soc., XI, 18, Pl. I, fig. 15, 1884.

"♀.—*Length* 10–11 *mm.*—Yellowish-red; the second segments of abdomen with a small semioval black spot at base. Wings hyaline on basal third, on distal part variegated with brown.

Face dark red, slightly polished, on the sides and upper angles and on the lower parts with pubescence; bristles like the face, yellowish on outer part; pile short, very sparse. Antennæ yellowish-red, the basal segments a little darker; first segment scarcely at all longer than the second, style comparatively longer than in *abdominalis*, nearly half as long as the third segment. Front opaque. Dorsum of thorax opaque brownish-red, on each side of the middle in front a small spot, and back of the suture above the wings a larger spot of a darker, more reddish-brown color; in front of the scutellum in the middle, a small, oval polished space, on either side of which the color is golden-yellow; along the suture on each side a slender, yellowish-gray stripe. Pleuræ thickly reddish-yellow and grayish pubescent. Abdomen polished red; the second segment at the base with a narrow, transverse, semioval polished black spot; on the anterior and posterior angles of the second segment with a small, on the posterior angles of the third and fourth, with a smaller silvery spot; the fifth segment on the sides with a large triangle, narrowly separated from one of the opposite side, and the sixth and seventh segments wholly opaque yellowish. In shape the abdomen has parallel sides to the tip of the second segment, thence widens to the tip of the fourth, thence on the sides more rapidly convergent. Legs wholly red, the coxæ yellowish opaque, the bristles light colored. Wings a little broader than in *abdominalis*, the anterior cross-vein near the middle of the discal cell; on basal third (except extreme base) hyaline, beyond variegated with brown, darker across the middle, the cross-veins and along the veins at tip."

Type.—University of Kansas. A single female.

Habitat.—Washington (type); Seattle, Wash. (C. W. Johnson, May 10).

Through the kindness of Prof. C. W. Johnson I have the loan of a male specimen of this species. It agrees very well with the above description; the abdomen, however, is typical of this genus in shape, and the fifth and sixth segments are silvery white pruinose. On each side of these two segments there are four or five distinct punctures arranged in two rows of two or three punctures each. The fifth segment is a little more than twice as wide as long.

DASYPOGON.

Dasypogon Meigen, Illig. Mag., II, 270, 1803.

In the restricted sense this genus does not occur in North America. Several species have been described under this genus in the old sense, and have never been identified. The only ones recorded from the United States are:—

Dasypogon quadrinotatus Bigot, Annales, 1878. Cal.
Dasypogon (*Seilopogon*) *rubinosus* Bigot, Annales, 1878. N. A.

EXPLANATION OF PLATES.

The figures on the Plates III, IV, V, were made with the camera lucida; those on Plate II are free-hand sketches. The photographs were taken in the Insectary of the Massachusetts Agricultural College. A Dallmeyer lens was used. As the photographs are not equally enlarged, the magnification will be stated in the following list. The author regrets that many of the finer details of antennæ, bristles and hairs have been lost in the necessary reduction of the original plates VI to X.

The plates are by the author.

PLATE II

FIG. 1—Asilid wing
1—costal vein.
2—axillary vein
3—first longitudinal vein.
4—second longitudinal vein.
5—anterior branch of the third longitudinal vein.
6—third longitudinal vein.
7—fourth longitudinal vein.
8—anterior intercalary vein.
9—fifth longitudinal vein.
10—posterior intercalary vein.
11—sixth longitudinal vein.
12—anal vein.
13—anterior cross vein.
14—portion of anterior intercalary referred to in *Leptogaster*.
15—posterior cross vein.
a—costal cell.
b—sub-costal cell.
c—marginal cell.
d—first sub-marginal cell.
e—second sub-marginal cell.

Fig. 1.—f—first posterior cell.
g—second posterior cell.
h—third posterior cell.
i—fourth posterior cell (closed).
j—fifth posterior cell.
k—anal cell (closed).
l—axillary cell (sometimes called the anal angle).
m—discal cell.
n—first basal cell.
o—second basal cell.

Fig 2.—Thorax of an Asilid.
pn—pronotum.
n—neck of prothorax.
msn—mesonotum.
sc—scutellum.
hu—humerus, or humeral angle
tr—transverse suture.
dp—dorsopleural suture.
mp—mesopleural suture
sp—sternopleural suture
msp—mesopleura.
mst—mesosternum.
ptp—pteropleura.
hyp—hypopleura.
mtn—metanotum.
mtst—metasternum.
mtp—metapleura.
hl—halter.
w—wing.
spl—spiracles.
c—prothoracic coxa.
c—mesothoracic coxa.
c—metathoracic coxa
1—first abdominal segment
2—second abdominal segment.

Fig. 3—Tip of front tibia of *Deromyia*, showing terminal claw-like spur and its relation to the front metatarsus.
" 4.—Diagrammatic, showing the usual direction of spines at tip of middle tibia.
" 5.—Diagrammatic, showing direction of spines at tip of middle tibia of *Chrysoceria* and *Callinicus*.
" 6 and 7.—Portion of wing of *Leptogaster*.
" 8—Abdomen of male *Nicocles politus*.

PLATE III

Fig 1 —Antenna of *Stenopogon latipennis*
" 2 — " " *Stenopogon inquinatus*
" 3 — " " *Stenopogon helvolus*
" 4 — " " *Stenopogon modestus*
" 5 — " " *Dizonias pilatei*
" 6 — " " *Taracticus octopunctatus*
" 7 — " " *Ospriocerus abdominalis*
" 8 — " " *Dioctria albius*
" 9 — " " *Cyrtopogon plausor*
" 10 — " " *Deromyia bilineata*

PLATE IV

Fig 1 —Antenna of *Laphystia opaca*
" 2 — " " *Ceraturgus cruciatus*
" 3 — " " *Ceraturgopsis cornutus*
" 4 — " " *Nicocles politus*
" 5 — " " *Willistonina bilineatus*
" 6 — " " *Holcocephala abdominalis*
" 7 — " " *Holopogon*
" 8 — " " *Lasiopogon opaculus*
" 9 — " " *Stichopogon trifasciatus*
" 10 — " " *Leptogaster pictipes*
" 11 — " " *Psilocurus nudiusculus*

PLATE V

Fig 1 —Head of *Deromyia*
" 2 — " " *Micostylum*
" 3 — " " *Stenopogon*
" 4 — " " *Holcocephala*
" 5 — " " *Holopogon*
" 6 — " " *Laphystia*
" 7 — " " *Stichopogon*
" 8 — " " *Teracticus*
" 9 — " " *Leptogaster*

PLATE VI

Fig 1 —*Leptogaster badius*, ♀, enlarged about 3⅓ X
" 2 —*Callinicus calcaneus*, ♀, enlarged about 3 X
" 3 —*Deromyia sallei*, ♀, enlarged about 1⅔ X
" 4 —*Microtylum morosum*, ♀, enlarged about 1⅔ X
" 5 —*Plesiomma unicolor*, ♀, enlarged about 2½ X
" 6 —*Chrysoceria pictitarsis*, enlarged about 3⅓ X

PLATE VII

Fig 1 —*Ceraturgus cruciatus*, ♀, enlarged about 3 X
" 2 —*Dizonias pilatei*, ♀, enlarged about 2⅔ X.
" 3 —*Willistonina bilineatus*, ♀, enlarged about 3⅓ X
" 4 —*Saropogon dispar*, ♂, enlarged about 2⅓ X
" 5 —*Ospriocerus abdominalis*, ♀, enlarged about 3 X
" 6 —*Ceraturgopsis cornutus*, ♀, enlarged about 2⅔ X

PLATE VIII

Fig 1 —*Cyrtopogon callipadillus*, ♂, enlarged about 3⅓ X
“ 2 —*Saropogon dispar*, ♀, enlarged about 2⅓ X
“ 3 —*Dizonias tristis*, ♂, enlarged about 2⅔ X
“ 4 —*Microtylum morosum*, ♂, enlarged about 1⅔ X
“ 5 —*Cophura, fallei*, ♀, enlarged about 3⅓ X
“ 6 —*Ecthodopa pubera*, ♂, enlarged about 3⅓ X

PLATE IX

Fig 1 —*Cyrtopogon nebulo*, ♀, enlarged about 3⅔ X
“ 2 —*Dicolonus sparsipilosum*, ♂, enlarged about 4⅓ X
“ 3 —*Triclis tagax*, ♀, enlarged about 4⅔ X
“ 4 —*Psilocurus nudiusculus*, enlarged about 3⅓ X
“ 5 —*Deromyia bilineata*, ♀, enlarged about 2 X
“ 6 —*Lasiopogon opaculus*, ♀, enlarged about 3¼ X
“ 7 —*Cyrtopogon dasyllis*, ♂, enlarged about 2⅓ X
“ 8 —*Dioctria albius*, ♀, enlarged about 4⅔ X

PLATE X

Fig 1 —*Lestomyia sabulonum*, ♂, enlarged about 4 X
“ 2 —*Nicocles rufus*, ♂, enlarged about 3⅓ X
“ 3 —*Myelaphus melas*, ♂, enlarged about 3⅓ X
“ 4 —*Heteropogon johnsoni*, ♀, enlarged about 3⅓ X
“ 5 — “ *macerinus*, ♂, enlarged about 3 X
“ 6 —*Cyrtopogon nugator*, ♀, enlarged about 4 X
“ 7 —*Stichopogon trifasciatus*, ♀, enlarged about 3⅔ X
‘ 8 —*Pycnopogon cirrhatus*, ♀, enlarged about 4⅔ X

PLATE XI

Fig 1 —*Holopogon atripennis*, ♂, enlarged about 5 X
“ 2 — “ *snowi*, ♀, enlarged about 7 X
“ 3 —*Taracticus octopuntatus*, ♂, enlarged about 5 X
“ 4 —*Holcocephala abdominalis*, ♀, enlarged about 6 X
“ 5 — “ “ ♂, enlarged about 6 X
“ 6 —*Cophura fur*, ♂, enlarged about 5 X
“ 7 — “ *clausa*, enlarged about 4 X

PLATE XII

Fig 1 —*Stenopogon* (*Scleropogon*), ☿, enlarged about 3¾ X
“ 2 — “ *lonnglus*, ♂, enlarged about 3¾ X
“ 3 — “ *breviusculus*, ☿, enlarged about 3¼ X
“ 4 —*Ablautus rubens*, ♀, enlarged about 5½ X

INDEX TO NAMES.

Names of subfamilies are in small capitals; generic names begin with a capital; specific names are in small type, and synonyms and preoccupied names are in italics.

PAGE
abbreviatus . . . 345
abdominalis (Holcocephala) 309
abdominalis (Nicocles) 385
abdominalis (Ospriocerus) 185
abdominalis (Stichopogon) 332
Ablautatus 178
Ablautus 151, 178
adustus 347
æacides 185
æacidinus. 193, 201
æacus 185
æmulator 385, 386
æta.. 310
albibasis 192, 197
albifasciatus 219
albifrons 351
albius 251
alleni 258, 261
amastris 389
angustipennis 354
Anisopogon. 318
annulatus. 157, 159
Aphamartania 381
apiformis 330
Archilestes 216
Archilestris 152, 216
arenicolor 297
argentatus. 385, 387
argenteus 332, 334
argentifer 390
Asicyia 225
ASILINÆ 151
Asilus 137
atridorsalis 157, 159
atripennis 312
aurifex . 259, 261, 272
aurulentus 243
badius 158, 160
basalis 358

PAGE
bella 379
bicinctus 219
bicolor 345
bigoti 354, 357
bilimatum 340
bilineata 354, 356
bilineatus 338
bimacula 258, 262
bivittatus 297, 298
Blacodes . 375
Blax 375
brevicornis (Leptogaster) 158, 161
brevicornis (Cophura) 377, 380
breviusculus 192, 196
calcaneus 340
californiæ 192, 194
Callinicus 154, 339
callipedilus 259, 260, 268
calva 309
candidus 335
capnopterus 217
carolinensis 173
Ceraturgopsis 152, 239
Ceraturgus 153. 233
cerussatus 259, 260, 291
chalcoproctus 212
Chrysoceria 154, 340
chrysopogon 263
cinerascens 193, 208
cirrhatus 330
clausa 377, 381
Clavator 370
combustus. 345, 347
consanguineus 193, 204
Cophura 155, 375
coquillettii 345, 348
cornutus 235, 240
cretaceus 259, 261, 287
cristata 377

PAGE
cruciatus 234, 235
cymbalista 259, 260, 269
Cyrtopogon 153, 257
dasyllis 259, 277
dasylloides 259, 277, 278
Dasypogon 393
DASYPOGONINÆ 151, 174
Daulopogon 296, 300
Deromyia 154, 352
Dicolonus 153, 246
Dioctria 153, 250
Dioctrodes 373
Diogmites 352
dimidiatus 236
Discocephala 309
discolor 354, 358
dispar 345, 349
Dizonias 152, 218
dives 385, 388
dubius 259, 283
Echthodopa 153, 248
elegantulus 332
Erax 139
Euarmostus 257
eudicranus 158, 162
eutrophus 185, 186
evidens 260, 288
fallei 377, 378
falto 258, 263
fasciatus 235
fasciventris 335
favillaceus 162, 163
flavicornis 163
flavipes (Ablautus) 179, 180
flavipes (*Dioctrodes*) 374
flavipes (Laphystia) 227, 229
flavipes (Leptogaster) 158, 163
flavipilis 232
formosa 248
fragilis 332, 334
fraudigera 371
funesta 307
fur 377, 381
galactodes 213
gelascens 335
gibber 259, 293

PAGE
gibbus 323
gilvipes 304
Gonypes 155
gracilis 353
gratus 192, 193
guttula 312, 313
Habropogon 337
helvolus 193, 208
herennius 367
Heteropogon 318
hirtipes 157, 158, 164
histrio 159
Holocephala 153, 308
Holopogon 153, 311
hyalinus 345, 351
hypomelas 354, 359
incisularis 158, 165
indecora 307
inquinatius 192, 198
johnsoni 319, 320
jubatus 192, 195
Laparus 341
Laphria 139
LAPHRINÆ 151
Laphyctis 228
Laphystia 152, 225
Lasiopogon 153, 257, 296
laticeps 310
latipennis 193, 205
lautus (Heteropogon) 319, 321
lautus (Holopogon) 312, 314, 321
Leptogaster 151, 155
leptogaster 307
LEPTOGASTRINÆ 151, 155
Lestomyia 154, 370
leucozonus 259, 260, 282
limatula 227, 229
lineata 307
lobicornis 243
longimanus 259, 260, 278
longulus 193, 203
Loewiella 375
ludius 319, 322
lutatius 258, 265
lutêus 345, 351
lyratus 258, 265

PAGE
macerinus 319, 323
maculosis 283
magnificus 217
manicatus 318
marginalis 258, 267
Megapollyon 212
melanopleurus 262
melas 243, 244
Metapogon 153, 303
Microstylum 152, 212
mimus 179, 181
minos 184, 187
minuta 176
misellus 369
modestus (Psilocurus) 223
modestus (Stenopogon) 192, 200
morosum 213, 214
morosus 192, 199
montanus . 259, 260, 280
murinus 158, 166
Myelaphus 152, 241
nebulo 258, 294
Neolaparus 341
Nicocles 155, 383
niger (Taraticus) 239
niger (Townsendia) 175
nigricolor 259, 284
nigripes (Ceraturgus) 238
nigripes (Heteropogon) 319, 325
nigritulus 192, 197
nigritus 192
nitens 193, 202
nitida 251. 253
nitidiventris 314
nitidus 173
notata 228
nudiusculus 223, 224
nugator 259, 260, 289
obscuripennis 158, 167
obscuriventris 192, 194
ochraceus (Leptogaster) 168
ochraceus (Stenopogon) 207
octopunctatus 374
oculatus 309
œlandicus 251
opaca 227, 229

PAGE
opaculus 297, 299
Orthoneuromyia 222
Ospriocerus 151, 183
parvula 251, 253
patruelis 319, 325
perplexa 354, 360
phæonotus 312, 315
philadelphicus 313
phœnicurus (Dizonias) 219
phœnicurus (Heteropogon) 319, 326
picticornis 193, 209
pictipes 157, 168
pictitarsis 342
pictus 385, 389
pilatei 221
plagiata 335
platyptera 354, 361
plausor 259, 260, 270
Plesiomma, 153, 305
politus 385, 390
pollens 214
positivus 259, 261, 290
præpes 259, 260, 271
princeps 259, 261, 273
profusus 259, 260, 286
Psilocurus 152, 222
pubera 248, 249
pulcher 259, 261, 274
pulcherrima 177
pulchra 361
pumilus 193, 206
punctipennis 304, 305
pusio 251, 254
Pycnopogon 154, 329
Pygostolus 383
quadrimaculatus 219
quadrivittatus 302
rattus 259, 260, 285
rejectus 259, 260, 289
resplendens 251, 255
rhadamanthus 185, 187
rubens 179, 181
rubida (Dioctria) 251, 255
rubida (Leptogaster 172
rubidus (Heteropogon) 319, 327
rubidus (Leptogaster) 172

PAGE
rufescens 354, 362
rufipes 374
rufithorax 309
rufiventris 309
rufotarsus 259, 260, 275
rufotibialis 179, 182
rufus (Myelaphus) 243, 245
rufus (Nicocles) 385, 392
rufus (Saropogon) 351
sabaudus 190
sabulonum 372
sackeni 251, 255
sallei 354, 364
Saropogon 154, 344
scapularis 169
schæfferi 157, 170
scitula 377, 382
Scleropogon 189
semiustus 345, 351
seniculus 312, 315
senilis 319, 328
sexfasiata 227, 228
simplex 247
similis 209
snowi 312, 316
sparsipilosum 247
spathulatus 185
Sphageus 152, 211
Stenopogon 151, 189
Stichopogon 154, 331
sudator 259, 261, 291

PAGE
subfasiata 228
subulatus 193, 202
symmacha 354, 365
tagax 231
Taracticus. 154, 373
tenebrosus 193, 206
tenuipes 158, 172
ternata 354, 366
terricola 297, 300
testaceus 157, 172
tetragrammus 297, 301
tibialis 285
tipuloides 155
Townsendia 151, 174
Tricilis 152, 230
trifarius 179, 183
trifasciatus 332, 335
tristis 219
trunca 377, 383
umbrina 367
umbrinus 312, 317, 354
unicolor 307
univittatus 193
varipennis 259, 295
varipes 168
ventralis 185, 188
vera 251, 256
vespoides 318, 329
virgatus 157, 158, 173
Willistonina. 154, 337
winthemi 354, 369

ERRATA.

Page 137, line 19, read *to the* for *of*.
" 137, line 27, read *Willistonina* for *Willistonia*.
" 139, line 6, read *Meigenian* for *Schiner*.
" 139, line 11, read *from* for *for*.
" 139, line 34, insert *Dioctria* between *Dasypogon* and *Leptogaster*.
" 140, line 6, omit first *r*.
" 140, line 8, read *der* for *de*.
" 140, line 8, read *Sudafrika's* for *Suda Africas*.
" 140, line 10, read *oder* for *order*.
" 140, line 11, read *Hofcabinets* for *Hofcabinits*.
" 142, line 4, read *these* for *the*.
" 143, line 25, read *Ceraturgus* for *Ceraturgis*.
" 148, line 5, omit *the* before *Laphystia*.

NEW SPECIES OF ACARINA.

BY H. E. EWING.

(Plates XIII.-XVI.)

In this paper 15 new species of Acarina are described. They are distributed into 12 genera and 8 families. One of the species, *Raphignathus tessellatus*, is the first representative of the genus *Raphignathus* to be found in America; another, *Neophillobius harti*, is the second representative of the genus to be found in this country. The members of the first named genus are especially characterized by the uniformally reticulate integument on the dorsal surface of the body. The members of the second genus are noted for the great length of the legs, which may almost be compared to the *Phalangidæ*. One species, *Gymnobates longus* belongs to the only genus of the family *Oribatidæ* peculiar to this country. The genus *Gymnobates* was first described by Nathan Banks. It is characterized by the fact that the pteromorphæ are attached to the cephalothorax as well as the abdomen.

The writer is indebted to the following persons for the collection of some of the species described in the following pages: Mr. C. A. Hart, of the Illinois State Laboratory of Natural History; Mr. J. Douglas Hood, a specialist in the study of Thysanoptera; Mr. James Zetek and H. Glasgow, both students of the University of Illinois.

In each case the species have been described from specimens mounted on microscope slides, which method is most advantageous because of the small size of the specimens. The drawings have been made with the aid of an Abbé Camera Lucida. In order to make the paper more complete the writer has given the characters of the different genera and families.

Fam. EUPALIDÆ.

No specialized setæ on cephalothorax arising from a pore on the postero-lateral aspect; integument not leathery or chitinized; palpi composed of three or five segments, not geniculate but ending in a large, stout claw; mandibles ending in one claw; eyes absent or only a single pair present.

Gen. **EUPALUS** Koch.

Palpi composed of three segments, without spine-like bristles; one pair of eyes present.

Only one species described.

Eupalus pectinatus n. sp.

(Plate XIII., Figs. 1, 2.)

Pale red.

Cephalothorax not distinctly demarcated from abdomen. Anterior bristles simple, situated about one-half their length from the anterior margin of the cephalothorax. They are about as long as segment two of palpus; posterior bristles small, almost erect, in the usual position. This species is peculiar in that it possess a long, pectinate, specialized seta arising from a pore situated in a funnel-shaped organ at the postero-loteral aspect of abdomen. This structure is apparently the same as that found in the *Oribatidæ*. Mandibles slightly longer than the palpi, hairless from above and ending in a claw. Segment one of palpus small; segment two about two-thirds as long as mandibles; segment three rudimentary and ending in a powerful, stout, outer claw and a stout inner spine. Segment two bears four similar, simple bristles on its dorsal surface; segment three has two outer bristles, the posterior is much the longer.

Abdomen pyriform; posterior end truncate. The abdomen has several small bristles, including about half a dozen at the posterior margin.

Leg one about as long as abdomen; tarsus three times as long as the tibia. The last two pairs of legs are much stouter than the first two pairs. Claws of last two pairs of legs twice as long as those of the two anterior pairs of legs. The tarsi have at their tips, besides the claws, caruncles, which are peculiar in consisting of three subequal prongs. Legs all sparsely clothed with hairs of different lengths.

Length, 0.38 mm.; breadth, 0.25 mm.

In moss. Collected by the writer at Mahomet, Illinois.

Fam. CRYPTOGNATHIDÆ.

Body plainly divided into cephalothorax and abdomen.

Palpi without true thumb, never geniculate; mouth parts small; last segment to the first pair of legs usually shorter than the penultimate segment; tarsi without suckers. Eyes usually present. Mandibles chelate.

Gen. **CALIGONUS** Koch.

Anterior pair of legs about equal to the other pairs; femora of hind legs not swollen; mandibles rather small. One pair of eyes present.

One species.

Caligonus cardinalis n. sp.

(Plate XIII., Figs. 3, 4.)

Bright red; legs somewhat paler than the body.

Cephalothorax small and almost twice as broad as long. Beak about as long as the cephalothorax. There is a single pair of eyes situated at the extreme postero-lateral aspect of the cephalothorax. Beak hairless. Mandibles sharp, pointed, each with two subequal bristles near the middle of the outer margin. Palpi large, about twice as long as the beak; second segment the longest; third segment three-fifths as long as segment two; fourth segment two-thirds as long as third; distal segment very small, rudimentary. All the segments of the palpi bear a few simple bristles except the proximal one; segment four has on its distal margin a small, chitinous hook; segment five is armed at its distal end with two large, stout bristles, which are inclined inwards and apparently are adapted for grasping and holding prey.

Abdomen almost twice as long as broad; bearing two prominent, slightly curved, simple, shoulder bristles, somewhat longer than the width of leg one, two pairs of somewhat longer, sharply recurved bristles are situated at the anterior margin of abdomen; the inner pair being about one-half its length from the median plane; a pair of bristles is sisuated near the middle of the dorsal surface of the abdomen and very near the median plane. There is a row of five bristles on each side of the abdomen about one-half the distance from the median plane to the lateral margin; two pairs of bristles are situated near the tip of the abdomen; the inner straight, and situated slightly above the lateral margin; the outer curved and situated slightly below the lateral margin. Anus at the tip of the abdomen and slightly ventral in position; just behind it are two small short, stout bristles.

Legs subequal in length; first pair of legs slightly shorter than the length of the body.; distal segment of leg one, one and one-half times as long as penultimate segment. All the segments of the legs have approximately the same width, excepting the basal segment, which is somewhat broader than the rest. Claws of legs bidactyle, with a a small narrow caruncle between the dactyles. Tarsus of each leg terminating in a few long, simple bristles; tarsi of legs one and two broad at the tip; tarsi of legs three and four not broadened at the tip.

Length, 0.38 mm.; breadth, 0.20 mm.

In moss. Collected by the writer at Urbana, Illinois. Many specimens.

Fam. TETRANYCHIDÆ.

Palpi free; tarsi never ending in suckers; body with a division between cephalothorax and abdomen. Last segment of palpus ending in a thumb; skin without shields; coxæ of legs arranged more or less into two groups; hairs on the body usually arranged into four longitudinal rows. Many of the members of this family spin threads, hence they are called the "spinning mites."

Gen. **RAPHIGINATHUS** Dugés.

No projecting tubercles from the anterior margin of the cephalothorax; body subglobose; hairs of the body arranged in four longitudinal rows. Legs moderately short. The skin of the dorsal surface is tessellated by having many small thickened, elevated areas.

Representatives of this genus are very common in Europe. The following species is the first of the genus to be recorded from America.

Raphignathus tessellatus n. sp.

(Plate XIII., Figs. 5, 6.)

Red; body completely covered with small, darker, areas arranged like mosaic work. These areas are all of about the same size but are very irregular in shape; between them is a network of light yellowish red integument. Legs graulate.

Cephalothorax composing one-half of the body and similar to the abdomen in shape; anterior margin oval. A single pair of eyes is present near the side of the cephalothorax, between legs one and two. The cephalothorax bears four pairs of stout, stiff, slightly clavate bristles arranged around the outer margin. Mandibles less than one-half as long as the palpi; second segment of palpus three-fifths as broad as long, broader at the proximal than at the distal end; third segment as broad as long; fourth segment half as long again as third segment and ending in a stout, slightly curved claw; thumb short, cylindrical, two-thirds as broad as long and not extending to the tip of the palpal claw. Palpi apparently hairless from below; above, segment two bears one large, slightly curved and slightly pectinate bristle; segment three has a very long bristle near its middle; segment four with at least three bristles; thumb with several bristles.

Abdomen similar in shape to cephalothorax, excepting the middle part of the posterior margin, which is almost straight. Abdomen bearing seven pairs of stout, stiff, slightly clavate bristles; two inner rows of four bristles each; two bristles on each lateral margin; and two pairs of bristles on the posterior margin, those of the outer pair being the largest.

Legs short; anterior pair about three-fifths as long as the body; second pair of legs three-fourths as long as anterior pair; third pair of legs equal to second pair; last pair of legs subequal to the anterior pair. All the legs are sparsely clothed with stout, slightly curved spines; tarsus and tibia of leg one each with a rather long tactile bristle. Tarsi with stout claws about one-third as long as the tarsal segments.

Length, 0.46 mm.; breadth, 0.32 mm.

In moss. Collected by the writer at Mahomet, Illinois. Four specimens.

Gen. NEOPHYLLOBIUS Berlese.

Cephalothorax without tubercles at the anterior margin; body broad, short, and bearing very large bristles; all the legs much longer than the body.

A single species.

Neophyllobius harti n. sp.*

(Plate XIV., Fig. 7.)

Body brownish red blotched with patches of black; legs and palpi pale red; integuments finely striated.

There is apparently no division between the cephalothorax and the abdomen. From the anterior part of the body projects a shelf-like expansion which partially concels the mouthparts; this may be called the epistoma. The epistoma is about three-fifths as broad as long, being broadest at the base and oval in front. The mandibles project slightly beyond the epistoma; palpi one and one-half times as long as the epistoma and extending beyond the mandibles. Each palpus ends in a stout claw and has also a thumb, which is about as long as the palpal claw. Each palpus bears about a half dozen bristles of varying length.

Body oval; two-thirds as broad as long and bearing about two dozen large, stout plumose spines, each of which is situated upon a small tubercle. From the anterior margin of the body extend two bristles, one along either side of the epistoma and equal to it in length; six bristles are situated at the posterior margin of the body.

Legs very long; anterior pair twice as long as the body; second pair of legs about one-half as long as the anterior pair; third pair two-thirds

---

* Named in honor of C. A. Hart, systematic entomologist of the Illinois State Laboratory of Natural History.

as long as the anterior pair; fourth pair equal to the first pair. Tarsus of leg one about two-fifths as long as the tibia; tibia two-fifths as long as the entire leg; antepenultimate segment very short, about one-third as long as tarsus. Each of the legs bears a few short bristles; none of the segments swollen.

Length, 0.64 mm.; breadth, 0.44 mm.

In moss. Collected by C. A. Hart at Carbondale, Illinois. One specimen.

This species differs from *N. americanus* Banks in many ways. The second pair of legs instead of being equal to the anterior pair are not over one-half as long! None of the tarsi are swollen in this species as in *N. americanus* and none of the legs have a long tactile bristle.

Fam. RHYNCHOLOPHIDÆ.

Palpus never geniculate or fitted for grasping prey, but provided with a thumb at the distal end; body well clothed with hairs; coxæ arranged in groups; cephalothorax on the same plane with the abdomen; mandibles styliform.

Gen. **RHYNCHOLOPHUS** Dugés.

Palpi large, composed of five segments; mouth parts not retractile; dorsal groove prominent; tarsus of leg one sometimes swollen.

Two species.

Key to species.

Palpi about equal in length to the mandibles.................**tumidus.**
Palpi about twice as long as the mandibles..............**longipalpus.**

Rhyncholophus tumidus n. sp.

(Plate XIV., Fig. 8.)

Uniform bright red; sparsely clothed with short clavate bristles; legs clothed with longer, simple bristles.

Cephalothorax not demarcated from abdomen; median groove extending as far as the eyes, expanded into a small triangular area posteriorly, from which extends two simple bristles fully one-half as long as the entire length of the groove; anteriorly the groove is continued into a small tubercle as broad as high, from which extends four prominent bristles each about one-third as long as the mandibles. A single pair of eyes is present above the second pair of legs. Mandibles as long as the palpi. Second segment of palpus one-half as broad as long; third segment broader than the second, about two-thirds as broad as long; distal segment scarcely equal to the third in length and ending in a weak claw; thumb rather small.

Abdomen two-thirds as broad as long, rounded posteriorly.

Anterior pair of legs almost as long as the body; tarsus swollen, two-thirds as long as tibia; tibia not so long or as broad as antepenultimate segment. Second pair of legs about two-thirds as long as the anterior pair; tarsus slightly swollen. The tarsus of leg four is very much swollen, about three-fifths as broad as long and about one-half as long as tibia. Claws situated on short pedicels.

Length, 1.22 mm.; breadth, 0.80 mm.

Under dead clover and grass. Collected by J. D. Hood at Urbana, Illinois. Two specimens.

Rhyncholophus longipalpus n. sp.

(Plate XIV., Fig. 9.)

Body red with dark blotches; legs and palpi paler than the body.

Cephalothorax truncate in front, as broad as long; dorsal groove extending beyond the eyes. At the posterior end of the dorsal groove are two long bristles, each about two-fifths as long as the cephalothorax. At the anterior end of the dorsal groove is a broad, low tubercle from which extend five long, subequal bristles. A single pair of eyes is present, situated on the postero-lateral aspect of the dorso-vertex about an equal distance from the lateral and the posterior margins of the same. Palpi large, longer than the cephalothorax and nearly twice as long as the mandibles; second segment of palpus twice as long as broad; third segment about two-thirds as long as the second segment; fourth segment ending in a single stout claw. Thumb cylindrical, not extending beyond the palpal claw.

Abdomen truncate posteriorly, broadest at the anterior margin and sparsely clothed with almost straight pectinate bristles.

Legs very long; anterior pair about twice as long as the body; second and third pairs of legs subequal, being about three-fourths as long as the anterior pair; posterior pair of legs equal to the anterior pair. Tarsus of leg one much swollen, one-half as broad as long and almost as long as the tibia; tibia subequal to antepenultimate segment. Tarsus of leg four slightly swollen and about one-half as long as the tibia. Legs two and three also have swollen tarsi.

Length, 0.38.; breadth, 0.26 mm.

Under bark of willow. Collected by the writer at Urbana, Illinois. One specimen. One other individual was seen, but I was unable to capture it.

Fam. TROMBIDIIDÆ.

Palpi free, the last segment being transformed into a thumb, the preceding segment ends in a stout claw. Body without shields ; eyes present; coxæ not radiate but arranged in two groups. Body thickly clothed with hairs, cephalothorax much reduced in size ; mandibles chelate.

Gen. **MICROTROMBIDIUM** Haller.

Palpi ending in two claws instead of one, as is the case of the members of the other genus of the family.

A single species.

Microtrombidium nigrum n. sp.

(Plate XIV., Figs. 10, 11.)

Body black, clothed with pectinate bristles; legs and palpi red; abdomen constricted at about one-third its length from the cephalo-thorax.

Cephalothorax small, narrow ; two-thirds as broad as long; two eyes on each side of cephalothorax, situated on a short stalk, common to both. Hairs on cephalothorax fewer and longer than those on the abdomen; median groove prominent. Mandibles one-half as long as the palpi. Segment two of palpus almost as long as the mandibles; segment three about three-fifths as broad as long; segmeut four ,ending in in two black claws, the outer being much the larger. This species has large thumbs, longer than segment four of the palpus and slightly swollen.

Abdomen almost as broad posteriorly as anteriorly; strongly constricted slightly in front of the middle; no elevated area on the dorsal part of the posterior region.

Legs long; anterior pair as long as the entire body; tarsus of leg one not swollen, as long as the penultimate segment; penultimate segment equal to antepenultimate. All the legs are sparsely clothed with hairs similar to those of the abdomen but somewhat longer. Claws of tarsi large and rather slender; those of the first pair of legs about one-half as long as those of the other legs.

Length, 1.90 mm.; breadth, 1.12 mm.

Under bark of a hickory tree. Collected by James Zetek at Danville, Ill.

Fam. ORIBATIDÆ.

Cephalothorax with a specialized seta on each side above, arising from a large pore near the postetior margin. Integument hard, well chitinized. Abdomen with chitinous winglike expansions called pteromorphæ. Mouth parts small, often invisible from above.

Key to genera described in this paper.

1. Abdomen with some large spatulate bristles on the dorsum. **Pelops.**
   Abdomen withot spatulate bristles .... 2.
2. Tarsus of leg one broadened distally .... **Gymnobates.**
   Tarsus of leg one tapering distally .... 3.
3. Lamellæ narrow, attached to the dorsal surface of the cephalothorax by their inner margins .... **Oribata.**
   Lamellæ very large, attached to the dorsal surface of the cephalothorax by their posterior margins only .... **Oribatella.**

Gen. PELOPS C. L. Koch.

Some of the setæ on the dorsum of abdomen large, spatulate; integument frequently rough; mandibles broad at the base but suddenly becoming narrow and terminated by minute chelæ. A large rectangular projection from the anterior margin of the abomen usually present.

One species.

Pelops latipilosus. n. sp.

(Plate XV., Fig. 12.)

Chestnut brown; integument slightly rugose.

Cephalothorax small, the posterior part hidden by a rectangular projection from the anterior margin of the abdomen. Lamellæ almost as long as the cephalothorax, about one-half as broad as long, the outer margin strongly convex, the inner free margin strongly concave; translamellæ a mere ridge; lateral lamellæ present, similar to the lamellæ in shape but longer. There is a large, stout pair of tectopedia present for the protection of the first pair of legs. The cephalothorax bears two pairs of prominent bristles; a large, long, lanceolate pair situated on the posterior dorso-lateral aspect, which are almost as long as the cephalothothorax itself, directed forwards and curved towards the median plane; and a much smaller, slightly curved serrated pair situated on the sides of the rostrum; directed outwards. Pseudostigmatic organs about as long as tibia of leg one, clavate with rugose heads.

Abdomen fully two-thirds as broad as long; pteromorphæ one-half as long as abdomen, truncate in front. When the mite is walking the pteromorphæ are so expanded as to present a view of their whole external surface from above, but upon the slightest provocation they are instantly drawn in close to the body and then entirely hide the legs. There is a broad, rectangular projection extending from the anterior margin of the abdomen, from each anterior corner of which projects an enormous, spatulate bristle, fully as long as the cephalothorax and projecting beyond the tip of the rostrum; at its broadest part it is broader than the width of the femur of leg one. The abdomen bears at least eight other pairs of spatulate bristles, but they are of about the usual size. There are two bristles situated just above each pteromorpha; two on each side of the median line at the posterior margin of the abdomen, one pair on the postero-lateral margin just in front of these; two situated almost touching each other at the middle of each lateral half of the dorsum and a single bristle situated about one-half the distance from these two to the anterior margin of the abdomen. Genital and anal covers subequal; genital covers situated approximate to the anterior margin of ventral plate; anal covers situated their length from the genital covers and three-fourths their length from the posterior margin of the ventral plate.

Legs rather short; tarsus and tibia of leg one subequal. Each leg bears several large, stout, slightly curved serrate bristles. Unguis tridactyle; dactyles unequal.

Length, 0.54 mm.; breadth, 0.42 mm.

Under hickory bark. Collected by H. Glasgow at Urbana, Illinois. Three specimens.

Gen. **GYMNOBATES** Banks.

Pteromorphæ long, extending beyond the anterior margin of the abdomen, and attached to the cephalothorax; claws tridactyle; tarsus of leg one broad at the tip.

One species. This is the second to be recorded in this genus.

Gymnobatus longus n. sp.

(Plate XV., Figs. 13, 14.)

Pale, yellowish brown; integument of medium thickness, surface smooth.

Cephalothorax long and narrow. The situation of the lamellæ is peculiar in this species. The true lamellæ are situated laterally. They are very long and narrow, about two-thirds as long as the cephalothorax, and their posterior ends, or the bases of the lamellæ, are situated below the attachment of the pteromorphæ to the cephalothorax. The inner lamellæ are indicated by two very short ridges situated at the posterior part of the cephalothorax; a very long, narrow translamella connects their anterior ends. There is a posterior pair of very long, pectinate bristles situated just in front of the transmella. The lateral, true lamellæ each bears a long, slightly curved, pectinate bristle, about as long as the lamella from which it extends. Pseudostigmatic organ with a small, short peduncle and a large, globose head.

Abdomen about one-half as broad as long; pteromorphæ very long, about as long as abdomen and extending from behind the middle of abdomen to almost the middle of cephalothorax. Genital opening almost round; situated about three times its length in front of the much larger anal opening. Anal opening broader posteriorly than anteriorly, situated almost approximate to the posterior margin of ventral plate.

Anterior pair of legs about two-thirds as long as abdomen; distal end of tarsus broad, this is only true, however, in the case of tarsus one; tarsus two-thirds as long as tibia. Femur of leg two bearing laterally a long, chitinous blade, the anterior cusp of which is as long as the genual of same leg. Legs bearing three equal claws.

Length, 0.48 mm.; breadth, 0.24 mm.

Under a log. Collected by the writer, Arcola, Illinois. Two specimens.

Gen. **ORIBATA** Latr.

Body with smooth integument; pteromorphæ attached to abdomen only; claws tridactyle; lamellæ attached to the cephalothorax for almost the entire length of their inner margin.

Four species.

Key to the species described.

1. Pseudostigmatic organs pectinate .... 2.
Pseudostigmatic organs simple, smooth .... 3.
2. Femora of legs with blade-like expansions on their inner margins. **laminata.**
Femora of legs without blade-like-expansions .... **subaquila.**
3. Translamella present .... **figurata.**
No translamella present .... **clavata.**

Oribata laminata n. sp.

(Plate XV., Figs. 15, 16.)

Light brown; surface of integument smooth.

Cephalothorax long and narrow; lamellæ about three-fifths as long as cephalothorax, without cusps and very narrow; translamellæ absent. There is a large pair of tectopedia for the protection of coxa one. Lamellar hairs somewhat longer than lamellæ, straight and directed forwards; interlamellar hairs similar to lamellar hairs but more erect. Anterior lateral hairs pectinate, about as long as lamellæ, curved markedly towards the median plane. Pseudostigmatic organ with short, slightly recurved peduncle and enlarged, oblong head. Palpi prominent.

Abdomen twice as long as broad; pteromorphæ truncate, not extending beyond the anterior marging of abdomen and attached to the anterior one-half of the lateral line of the same. Genital covers twice as long as broad, situated about twice their length in front of the larger anal covers. Anal covers almost approximate to posterior margin of ventral plate. Abdomen hairless.

Anterior pair of legs almost as long as abdomen; tarsus and tibia subequal, This species is remarkale in that all the femora possess a chitinous, blade-like expansion. This chitinous blade is slightly crescent shaped, without cusps and is attached to the whole length of the femur. Unguis tridactyle.

Length, 0.44 mm.; breadth, 0.22 mm.

Under bark. Collected by the writer at Urbana, Illinois. A single specimen.

Oribata figurata n. sp.

Plate XV., Figs. 17, 18.)

Light brown; surface of integument smooth.

Cephalothorax as broad as long; lamellæ three-fourths as long as cephalothorax, about the same width throughout; lamellar cusps prominent; translamellar a mere ridge. Lateral lamellæ present, about three-fifths as long as cephalothorax, curved towards the median plane. Prominent, stout tectopedia for first pair of legs. Lamellar hairs straight, pectinate, about one-half as long as the lamellæ from which they extend; interlamellar hairs approximate to the posterior margin of the dorso-vertex and similar to the lamellar hairs, but about twice as long as the same, directed forwards; anterior lateral hairs stout, curved, and pectinate, about as long as the lamellar hairs. Pseudostigma funnel-shaped, projecting abont one-half its length above surface of cephalothorax; pseudostigmatic organ about as long as tibia of leg one, strongly clavate and directed forwards.

Abdomen globose; pteromorphæ attached to the anterior two-thirds of the lateral margin, truncate in front and not extending beyond the anterior margin of abdomen, anterior free edge concave. Genital covers subrectangular, almost as large as anal covers and situated one and one-half times their length in front of the latter. Anal covers situated almost approximate to the posterior margin of the ventral plate. Abdomen hairless.

Anterior pair of legs three-fourths as long as abdomen; tarsus slightly longer than tibia. Legs bearing prominent pectinate bristles. No tactile hair on tibia one. Unguis tridactyle.

Length, 0.39 mm.; breadth, 0.30 mm.

Under logs. Collected by the writer at Urbana, Illinois. One specimen.

Oribata subaquila n. sp.

(Plate XV., Fig. 19.)

Chestnut brown; integument of medium thickness, surface almost smooth.

Cephalothorax about two-thirds as broad as long; lamellæ prominent, about two-thirds as long as cephalothorax, narrow at the posterior part, the anterior part being about one-fourth as broad as the lamellæ are long; lamellæ with prominent cusps; translamellæ incomplete, being interrupted medially. Lateral lamellæ present, three-fifths as long as cephalothorax, very narrow. A rather prominent tectopedium for leg one is present. Lamellar hairs simple, straight, directed forwards and somewhat longer than the lamellæ from which they extend. Interlamellar hairs situated approximate to posterior margin of cephalothorax, similar to lamellar hairs. The anterior lateral hairs spring from the lateral lamellæ. They are stout, pectinate, almost straight and about as long as the lamellæ. Pseudostigma funnel-shaped, extending one-third its length above the surface of cephalothorax; pseudostigmatic organ two-thirds as long as lamellæ, clavate, dentate, directed forwards and away from median plane.

Abdomen about three-fifths as broad as long, ptermorphæ attached to the anterior two-thirds of the abdomen, truncate in front and not extending quite to the anterior margin of abdomen; anterior free edge of pteromorphæ straight. Genital covers almost rectangular, slightly broader anteriorly than posteriorly, situated about one and one-half times their length in front of the larger anal covers. Anal covers half as long again as genital covers, triangular and situated almost approximate to the posterior margin of ventral plate. Abdomen hairless.

Anterior pair of legs a little longer than the cephalothorax; tarsus and tibia subequal. Tactile hair of tibia one, situated at the dorsal, distal aspect of segment, about three times as long as the segment itself. The femur of leg two bears on its lateral surface a small, narrow blade with a large cusp at its distal end. This blade is represented in the femur of leg one by a small chitinous ridge with a small process at its distal end. The legs each bear several stout, curved, pectinate bristles. Unguis tridactyle.

Length, 0.42 mm.; breadth, 0.26 mm.

Under bark and in moss. Collected by the writer at Urbana, Illinois. Many specimens.

Oribata clavata n. sp,

(Plate XV., Fig. 20.)

Light brown; integument of medium thickness, surface smooth.

No demarcation between cephalothorax and abdomen. No median lamellæ, but a pair of narrow, lateral lamellæ which arise at the pseudostigmata and extend about two-thirds the distance to the tip of the cephalothorax. Lateral lamellæ broadest at the posterior end and gradually narrowing anteriorly until they disappear. No translamella. No lamellar hairs or anterior lateral hairs. Interlamellar hairs situated almost in front of pseudostigmata, about as long as the pseudostigmatic organ and pectinate. Pseudostigmata funnel-shaped; pseudostigmatic organs clavate and slightly recurved.

Abdomen about two-thirds as broad as long; pteromorphæ triangular and not extending beyond the base of the cephalothorax; they are about one-third as long as the abdomen. Dorsum of abdomen bearing about a dozen stout, slightly curved, pectinate bristles. Genital covers twice as long as broad and situated about one and one-half times their length in front of the anal covers.

Legs short; anterior pair about three-fifths as long as the abdomen. Tarsus and tibia subequal. Unguis tridactyle.

Length, 0.56 mm.; breadth, 0.42 mm.

Under old pieces of wood. Collected by the writer at Arcola, Illinois. A few specimens.

Gen. ORIBATELLA Banks.

No large, spatulate hairs on the dorsum of the abdomen; tarsus of leg one tapering at the distal end, not broadened. Lamellæ large and attached to the dorsal surface of the cephalothorax by their posterior margins only.

One species.

Oribatella magnilamellata n. sp.

(Plate XV., Figs. 21, 22.)

Dark chestnut brown; integument thick, surface smooth.

Cephalothorax rather small, triangular and almost entirely hidden by the broad, long lamellæ; lamellæ very large, extending the entire length of the cephalothorax and projecting slightly beyond the tip of the rostrum, one-third as broad as long, notched in front. From the lateral corner of the lamella extends a sharp curved cusp; from the median corner extends a very stout, slightly pectinate bristle curving slightly towards the median plane, and as long as the lamella is broad. One pair of tectopedia present which are one-half as long as the lamella. Interlamellar hairs long, curved, slightly pectinate, as long as the lamellæ themselves and situated at the base of the lamellæ; anterior lateral hairs about two-thirds as long as interlamellar hairs, strongly curved and pectinate. Pseudostigmatic organ somewat longer than femur one, strongly clavate, directed forwards and towards the median plane.

Abdomen two-thirds as broad as long; pteromorphæ about one-half as long as abdomen, truncate in front and not projecting beyond the anterior margin of abdomen. Anterior free margin of pteromorphæ convex. Genital covers subrectangular, of equal breadth throughout, somewhat smaller than the anal covers, and situated twice their length in front of the latter. Anal covers subtriangular in shape, much broader posteriorly than anteriorly and situated one-half their length from the posterior margin of ventral plate. Abdomen with a few fine hairs.

Anterior pair of legs as long as abdomen; tarsus slightly longer than tibia; genual two-thirds as long as tibia: femur almost three times as long as genual. Tactile hair almost twice as long as tarsus. Unguis tridactyle; dactyles unequal.

Length, 0.37 mm.; breadth, 0.24 mm.

Under bark. Collected by the writer, Urbana, Illinois. Many specimens.

Fam. NOTHRIDÆ.

With specialized seta arising from a pore on each side of the dorsal surface of the cephalothorax near the posterior margin. Abdomen immovably fused with cephalothorax and without pteromorphæ. Segments of legs often stout, sometimes swollen.

Gen. **NEOLIODES** Berlese.

Cephalothorax without lamellæ; legs short and stout; abdomen without transverse suture; dorsum of abdomen convex, and carrying nymphal skins showing concentric rings; unguis tridactyle.

One species.

Neoliodes concentrica Say (?).*

(Plate XVI, Figs. 23, 24, 25, 26.)

---

* I think it would hardly be possible for any one to determine this species from Say's description in Jour. Phila. Acad., vol. ii, 1821, p. 73. Most of the characters given in this description are either generic or are based upon erroneous ideas of the anatomy of the acarina, as for example, his reference to the eyes as being "Two, minute, brownish, elevated on an elongated, slender filiform peduncle." This reference is evidently to the pseudostigmatic organs.

Since I found that my specimens did not agree with Banks' figure of *concentrica* on page 72 of his treatise on the acarina, at first I thought it was new. Recently I have found this species in Wisconsin and many places in Illinois, always under bark. Mr. J. D. Hood has also sent me specimens of it taken from under bark in Michigan. I would infer from this that the species probably has a general distribution over the United States, and since it has always been found under bark and is the only common species of the genus found in this situation in this country it likely is Say's species, for he found *concentrica* only under bark. If it should prove in the future to be new, I would suggest that it be named after Mr. Hood, who first found the species in the middle part of the continent.

Dark brown; integument thick, leathery, rough, tuberculate.

Cephalothorax triangular, about three-fifths as broad as long, dorsovertex very rough, the integument being thickened in places as to form ridges. There is a pair of stout, short, curved, clavate anterior lateral bristles which extend upwards and towards the median plane. Pseudostigma low, cylindrical; situated at the extreme, posterior laterodorsal aspect of cephalothorax; pseudostigmatic organ short, strongly clavate, about as long as femur one is broad.

Cephalothorax about three-fifths as broad as long; elongate and pointed posteriorly; dorsum has four areas concentrically arranged and at different levels in a stair-step fashion, the outer area being at the bottom and the inner at the top; areas of same shape which is that of the abdomen itself. Three pairs of stout, clavate, bristles are situated on the posteror margin of the abdomen near the median plane. The inner pair is very large, being longer than the tarsus of leg four, middle pair not quite one-half as long as the median pair, the outer pair is the smallest, being not quite as long as the middle pair; abdomen otherwise hairless. Ventral plate triangular, a little longer than broad; genital covers larger than anal covers, each about twice as long as broad and with a straight median margin and a convex lateral margin; genital covers situated almost approximate to the anterior margin of ventral plate and the anterior margin of the anal aperture; anal covers about three times as long as broad, much broader anteriorly than posteriorly.

Legs short and stout; anterior pair not quite as long as abdomen; tibia a little longer than tarsus: each leg with several short, stout, usually slightly curved, clavate bristles. The tarsus of each leg has several small, straight, simple hairs, and the tibia a few of such hairs. Unguis stout, strong, tridactyle; dactyles equal.

Length, 1.04 mm.; breadth, 0.52 mm.

Under hickory bark. First collected by J. D. Hood, Urbana, Illinois. Many specimens.

Fam. HOPLODERMIDÆ.

With a specialized setæ arising from a pore near each postero-lateral corner of cephalothorax; cephalothorax hinged to abdomen and capable of being folded down over the ventral surface of the same; body compressed; integument not strongly chitinized.

Gen. **HOPLODERMA** Michael.

Unguis monodactyle; genital and anal covers separated from each other.

Hoploderma lurida n. sp.

(Plate XVI., Fig. 27.)

Light brown, with a pea-green tinge; integument of abdomen and cephalothorax very finely pitted.

Cephalothorax about one-half as long as abdomen and one-half as high as long. Pseudostigma round, flat, with radiating ridges, its diameter equals the widfh of femur one, situated approximate to the posterior ventral margin of dorso-vertex; pseudostigmatic organ long, narrow, slightly clavate, as long as femur of leg one. When the cephalothorax is extended, the dorsum of adomen projects but slightly over the posterior margin of the former. Mandibles and palpi large and prominent. Cephalothorax with a single pair of hairs near the anterior margin.

Abdomen about two-thirds as high as long, rounded at its posterior end, anterior margin somewhat concave; dorsum of abdomen bearing about a dozen pairs of rather long, straight, simple bristles. Genital and anal covers large and close together.

Legs all about the same length, but the anterior pair is stouter than the rest; tibia of leg one slightly over one-half as long as tarsus; genual almost as long as tibia; femur more than twice as long as genual. The tarsus and tibia, especially of the first pair of legs, bear rather prominent straight hairs. Unguis monodactyle and almost as long as the tarsal segments from which they extend.

Length, 0.82 mm.; height, 0.46 mm.

Under bark. Collected by the writer at Urbana, Illinois. One specimen.

EXPLANATION OF PLATES.

PLATE XIII.

Fig. 1.—*Eupalus pectinatus*, n. sp., left, palpus, x 342.

Fig. 2.—*Eupalus pectinatus*, hair arising from pore on the posterior dorsal aspect of the cephalothorax, x 342.

Fig. 3.—*Caligonus cardinalis* n. sp., x 85.

Fig. 4.—*Caligonus cardinalis*, distal end of palpus, x 550,

Fig. 5.—*Raphignathus tessellatus* n. sp., x 85.

Fig. 6.—*Raphignathus tessellatus*, right palpus, x 342.

PLATE XIV.

Fig. 7.—*Neophillobius harti* n. sp., x 60.

Fig. 8.—*Rhyncholophus tumidus* n. sp., x 60.

Fig. 9.—*Rhyncholophus longipalpus* n. sp., right palpus, x 195.

Fig. 10.—*Microtrombidium nigrum* n. sp., eyes and eyestalk, x 550.

Fig. 11.—*Microtrombidium nigrum*, hair from body, x 550.

PLATE XV.

Fig. 12.—*Pelops latipilosus* n. sp., pseudostigmafic organ, x 342.

Fig. 13.—*Gymnobates longus* n. sp., x 97.

Fig. 14.—*Gymnobates longus*, pseudostigma and pseudostigmatic organ, x 550.

Fig. 15.—*Oribata laminata* n. sp., leg one, x 342.

Fig. 16.—*Oribata laminata*, pseudostigma and pseudostigmatic organ, x 342.

Fig. 17.—*Oribata figurata*, n. sp., x 97.

Fig. 18.—*Oribata figurata*, pseudostigma and pseudostigmatic organ, x 550.

Fig. 19.—*Oribata subaquila* n. sp., lamella and lamellar hair, x 550.

Fig. 20.—*Oribata clavata* n. sp., pseudostigma and pseudostigmatic organ, x 550.

Fig. 21.—*Oribatella magnilamellata* n. sp., lamella and lamellar hair, x 550.

Fig. 22.—*Oribatella magnilamellata* n. sp., pseudostigma and pseudostigmatic organ, x 550.

PLATE XVI.

Fig. 23.—*Neoliodes concentrica* Say, leg one, x 85.

Fig. 24.—*Neoliodes concentrica* Say, cast nymphal skin from the dorsum of the obdomen, x 85.

Fig. 25.—*Neoliodes concentrica* Say, ventral plate, genital and anal covers, x 60.

Fig. 26.—*Neoliodes concentrica* Say, pseudostigma and pseudostigmatic organ, x 342.

Fig. 27.—*Hoploderma lurida* n. sp., x 85.

A CONTRIBUTION TO THE KNOWLEDGE OF THE PARASITIC HYMENOPTERA OF ARGENTINA.

BY P. CAMERON.

The species of Parasitic Hymenoptera described in this paper were taken by Messrs. A. C. Jensen-Haarup of Silkeborg, Denmark, and P. Jorgensen in 1904–5 and 1906–7 in Western Argentina chiefly, near Mendoza. Some remarks on the climate and vegetation, particularly in relation to the Hymenoptera will be found in a paper in the Danish publication "Flora og Fauna," 1908, pp. 95–111, by Mr. Jensen-Haarup. Very little has been written on the Parasitic Hymenoptera of Western Argentina. It is therefore not surprising that most of the species (thirty-six species including seven new genera) are undescribed.

CHALCIDIDÆ.

LEUCOSPIDINÆ.

1. **Leucospis pulchriceps** sp. n.

Black, densely covered with a silvery pile, the head, metanotum and, to a less extent, the mesonotum, with firey red, coppery and green metallic tints, the basal two or three joints of the antennæ and the others to a less extent beneath, and a large squarish mark on the sides of the pronotum at the base, rufous; the pronotum with a transverse line, narrowed outwardly, near the apex, a slightly wider transverse line, not reaching to the outer edge, on the apex of the mesonotum, a narrower curved line on the apex of the scutellum, a mark on the centre of the mesopleuræ at the base, roundly narrowed above, transverse below; the post-scutellum, a broad line, widened inwardly extending from the sides to near the middle, a broader, continuous line on the base of the third segment, obliquely narrowed on the outer edge, a narrow slightly curved line, on the centre of the hind coxæ above, a line narrowed towards the base, on the upper outer edge of the hind coxæ, a broader one, narrowest on the apical half, a thin line on the upper outer edge of the fore femora and the fore tibiæ below, yellow. Hind femora with a large basal triangular tooth, followed by ten short, thick black ones closely pressed together, especially towards the apex; the basal two small ones are shorter than the others, and the second small one is distinctly narrower and shorter than the first. The ovipositor is reddish in the middle, its apex reaches to the apex of the metamotum. Wings hyaline, a narrow smoky cloud along the apical half of the costa, the apex is broadly smoky, but with a hyaline cloud in the middle, not reaching to the costa and extending along the apical margin to the middle; the hind wings almost hyaline. Tegulæ rufous. ♀. Length 10-11 mm.

Eyes parallel, not converging above or below malar space nearly as long as the antennal scape. Apex of clypeus with the sides roundly narrowed, the centre slightly but distinctly roundly incised. The third and fourth joints of the antennæ are almost equal in length. Hind ocelli separated from the eyes by about two and a half times the distance they are from each other. The puncturation is strong and close, stronger on the thorax than on the head or abdomen; on the hind femora it is still finer. Basal abdominal segment distinctly narrowed and clearly separated from the second.

Mendoza, 25th November.

The extent of the rufous color on the antennæ and thorax varies, as does also the extent of yellow on the legs and the metallic coloration varies in intensity. Mandibles broadly red at the base; apical joint of maxillary palpi testaceous. The apical yellow abdominal stripe is in reality composed of three closely united marks of which the central is the smaller.

It may be that this is a form of *L. coxalis* Kirby, but. the description given of that species is not very clear; it has no basal yellow stripe on the abdomen; the ovipositor reaches near to the scutellum, while with the species here described it only reaches to the middle of metanotum and there is a broad yellow band on the apex of the first abdominal segment. The legs in *coxalis* are described as "mostly rufous," in *pulchriceps* the only rufous color is on the hind coxæ.

2. **Leucospis bicanaliculata** sp. n.

Black, densely covered with silvery pubescence, especially on the head and metanotum, the tegulæ, a small spot on the pleuræ below them, the hind coxæ except in the centre behind and the basal half of the ovipositor, rufous; a line on the upper side of the hind coxæ, on the upper and lower side of the hind femora, the knees and fore tarsi, yellow; the hind femora has a large basal and ten minute teeth, closely packed. Basal segment of abdomen about one-half longer than wide, clearly narrower than the second, its centre above is finely longitudinally keeled, the keel bordered by distinct, wide, deep furrows, which converge slightly towards the apex; the ovipositor reaches to its apex and has the basal half rufous. Wings fuscous violaceous. There is usually a yellow line on the apex of the second segment, and there may be one on the apex of the third and fourth; there may be a yellow line on the apex of the pronotum; and the head and abdomen and, to a less extent, the thorax and hind coxæ may be dark green metallic tinted. ♀ and ♂. Length 9–10 mm.

Closely covered with white pubescence and closely distinctly punctured, the punctures on the vertex almost forming reticulations. Hinder ocelli separated from each other by almost the same distance as they are from the eyes; the vertex behind them raised into a keel. Eyes converging below, their inner side above the middle with a slight incision or curve. Apex of the clypeus transverse, its sides rounded. Antennæ entirely black or rufous beneath. The amount of the rufous and yellow color varies, *e. g.*, the yellow may be absent from the pronotum and the rufous from the hind coxæ. Hind coxæ closely, distinctly punctured. Post-scutellum triangular, with distinct outer edges, the centre being depressed.

Mendoza, November.

Of the described species *L. bicanaliculata* comes nearest to *L. distinguenda* Schlett., from Brazil, *e. g.*, in that species the ovipositor reaches to the middle of the first abdominal segment, the hind coxæ are smooth above and the abdomen bears on yellow bands.

3. **Leucospis varicollis** sp. n.

Black, densely covered all over with long white pubescence, the underside of the antennal scape, a line on the hinder edge of the pronotum, a curved line of the same width on the apex of the scutellum, a line, twice wider, on the apex of the second abdominal segment, a much wider one on the apex of the third, roundly incised at the apex, the sides from the apex, obliquely widened and prolonged backwards beyond the central part, which is transverse, a curved line, narrowed towards the apex, on the upper basal half of the hind femora, the apices of the four front femora, a line round the hinder femora, except near the base of the tibiæ, where it is interrupted, the line on the lower part being wider than it is on the top, especially on the oblique basal half, the four front tibiæ, except for a line behind and the tarsi, yellowish white. Femora with ten teeth, the basal four small and closely pressed together. Wings hyaline, the apex clouded, and there is a narrow cloud along the apex of the costa; the nervures black. ♂. Length 7 mm.

Sides of the face broadly and the lower of the front less strongly, closely longitudinally striated, the striæ more or less interwoven. Face in the middle above shining and distinctly punctured. Clypeus except at the apex longitudinally striated, the lower half and the apex bordered by a smooth flat line, the lower line rounded and ending in the middle in a triangular tooth. Head and body closely, rather strongly punctured. Metanotum bordered by an oblique crenulated furrow, and down the middle is a wider punctured furrow. Behind the yellow line on the pronotum is a transverse ridge or keel, between which, almost halfway between it and the apex, is a narrower curved black one. The first abdominal segment is twice longer than wide, is of equal width and is clearly separated; its apex is depressed and has the punctures more clearly and widely separated; the rest of the abdomen is longish pyriform. The last ventral segment is depressed, bluntly rounded at the apex; the dorsal segment on either side of the apex of the ventral also roundly projects, but not so much as the ventral. The outer side of the hind femora are more closely and finely punctured than the rest; except the basal, the femoral teeth are large and clearly separated. Post-scutellum broadly rounded. The first joint of flagellum longer than the following, clearly longer than thick, the others not longer than thick. Malar space as long as the pedicle and following joint. Cheeks distinctly converging.

In the table in Schletterer's Monograph of *Leucospis* (Berl. Ento. Zeits. xxxv., 168–170), this species runs near to *L. intermedia*. The femoral teeth are more like those of *L. leucotelus* and *L. guzeratensis*, as figured by Schletterer, *l. c.* pl. vi., than of *L. intermedia*, as shown on the same plate.

CHALCIDINÆ.

SPILOCHALCIS Thoms.

4. **Spilosmicra leptogastra** sp. n.

Black, shining with the following bright lemon-yellow markings: a narrow line in the middle of the inner eye orbits, tegulæ, broad lines, widely separated, narrowed and rounded on the inner edges on the sides (the black central part is narrower than them), on the base of the second, third and fourth segments, the apices of the four front femora all round broadly, and the front and upper part of them to beyond the middle, a broad line on the front and upper apical two-thirds of the hind femora, the line narrowed at the base, a small square spot in the middle of the apex, a narrower line, rounded above, on the lower edge, a mark, larger than that on the outerside, on the inner side, close to the apex, rounded above and below, transverse at the apex, the base roundly incised, and the apical third of the tibiæ, bright lemon-yellow; the tarsi yellow suffused with fulvous. Head and thorax covered with longish white pubescence. Wings hyaline, the nervures and stigma black. Hind femora with sixteen small teeth closely pressed together. Wings hyaline, the nervures black. ♂. Length 7 mm.

Abdomen long, gradually narrowed from the second segment, twice the length of the thorax, the petiole short, not much longer than broad.

Sides of front strongly punctured, the inner edge striated. Centre of face smooth, the sides punctured and striated, the striæ stronger on the outer edge. Pro- and meso-thorax with the scutellum closely punctured, but not very strongly, the central lobe of mesonotum closely transversely striated; the centre of the scutellum has a large smooth space on the apex. Basal half of metanotum closely transversly striated, the apex with two transverse keels and a few broken longitudinal ones. Propleuræ transversely aciculated. Mesopleuræ smooth at the base, the apical depression striated at the base above and entirely below; the rounded apical part is strongly closely punctured. Metapleuræ rugosely punctured above, down the centre is a large furrow, running from the base to the apex, it becomes narrowed towards the apex and margined by stout keels; the part below this is strongly aciculated, and has a few broken keels; below this are two longitudinal keels with some transverse ones between. The ovipositor forms a broad, stout sheath, which projects the length of the last segment beyond it.

Mendoza, December.

The ♂ is similarly colored but with the yellow marks less developed; the example in the collection is only 4 mm. in length.

5. **Spilosmicra Jensen-Haarupii** sp. n.

Antennal scape yellow, the flagellum brown. Head yellow, the occiput except round the edges, a line in the centre of the vertex, the centre of front broadly, the depression at the sides of the ocelli and the mandibular teeth, black. Thorax black, with the following pale yellow markings: The pronotum and upper part of the pleuræ (the black on the latter is narrowed above), a black band on the base of the pronotum, the mark gradually narrowed in the middle above; a semi-circular, oblique mark on the sides of the mesonotum along the furrows, a smaller, more irregular spot at the tegulæ, the scutellum, except round the edges and with a black line, squarely dilated at the apex, down the centre a triangular mark, the narrowed end above, immediately below the tegulæ, a slightly larger triangular mark, with the narrowed end below, and a larger oblique oval spot immediately behind it on the metapleuræ. The basal half of the second abdominal segment, the basal third of the third, narrow bands on the base of the following three segments and two spots on the penultimate segments pale yellow. Legs yellow, the hind coxæ black on the top and bottom; an irregular fuscous spot in the centre of the femora, on the outer side, a black semi-circular one on the apex below and the teeth black; the inner side broadly infuscated below, the band incised near the middle; there is a fuscous longitudinal streak near the top; there are about sixteen small teeth below, the apical closely pressed together, the basal not larger than the others. ♀. Length 4-5 mm.

Vertex between the ocelli furrowed; at the sides of them closely obliquely striated; the sides of front distinctly punctured; the face is as strongly but not so closely punctured. Occiput obscurely striated. Pro-, mesonotum and scutellum closely strongly punctured, the latter with a broadly rounded raised margin. Metanotum irregularly, rather closely reticulated all over; the areola small, the base obliquely narrowed, the apex transverse. Pro- and mesopleuræ smooth, the lower edge of the former and the basal and apical furrows of the latter striated; the metapleuræ if anything more strongly, but not so closely punctured as the mesonotum. The pubesence on the head and thorax is black; it is much longer on the scutullum. Wings hyaline, the nervures black.

Mendoza, October.

6. **Spilochalcis pulchripes** sp. n.

Rufous, largely marked with pallid yellow and with the following black markings: A broad line extending from the anterior ocellus down the front to the antennæ, a broad line, narrowed below, in the middle of the occiput, a triangular spot in the centre of the basal slope of the pronotum, an irregular spot on the middle lobe of mesonotum, a smaller pyriform one on the lateral lobes, the greater part of the metamotum, the suture between the pro- and mesopleuræ, a large spot, narrowed above, on the lower central part of the mesopleuræ, a line on the propleuræ at the coxæ, and the femoral teeth, black. The following parts are pallid yellow: The face, oral region, the lower eye orbits broadly, malar space, the basal slope, the sides narrowly, the centre broadly, and the pleuræ of the prothorax, the outersides of the lobes of the mesonotum broadly, the sides of the scutellum broadly and the sides of the second and third abdominal segments. Legs rufous, the tarsi paler, more yellowish in tint, the apex of the four fore femora, the base and apex of the tibiæ, a broad streak on the underside of the hinder coxæ, the outer side of the hind femora except for an irregularly large, triangular mark on the basal two-thirds, the basal part longer than the outer, and a spot on the inner posterior fourth of the base. On the upper side of the hind coxæ in the middle is a broad black stripe. Femora teeth small, of almost equal size and ten in number. Antennal scape yellowish, the flagellum brownish, darker above. Wings hyaline, the nervures black. ♀ and ♂. Length 4-5 mm.

Face closely, finely transversely striated. Sides of face and front of vertex strongly puncured, an oblique furrow runs from the fore edge of the lateral ocelli to the eyes; the part behind this furrow is less strongly and more widely punctured. Pro- and mesonotum and scutellum strongly punctured, the middle lobe more widely than the lateral and finely closely transversely striated. Metanotum closely irregularly reticulated; the areola triangular, followed by a keel. Propleuræ aciculated, the mesopleuræ strongly punctured, with an oblique row of striæ down the middle. Metapleuræ more closely and strongly punctured. Abdominal petiole nearly as long as the basal joint of the hind tarsi.

Mendoza, December to March.

The size of the black and yellow markings may vary; there may be a black line down the middle of the scutellum.

SMICRA Spin.

7. **Smicra ornatifrons** sp. n.

Black, the apical third of the scape and the basal joint of the flagellum rufous, an irregular triangular spot (the narrowed end below) on the lower half of the front touching the eyes, the lower two-thirds of the antennal keel, a curved line along the apex of the pronotum, a slightly wider line on the apex of the scutellum, tegulæ, the upper side of the abdominal petiole, broad apical complete lines on the apices of the second and third segments and narrow interrupted ones on the fourth and fifth bright lemon-yellow. Four front legs rufous, their coxæ and trochanters and base of femora broadly (the anterior more broadly than the middle pair) black; the hind legs black, on the upper part of the femora, commencing on the upper edge at the apex of the basal third and ending lower down (*i. e.*, it has an oblique slope) at the beginning of the apical fourth, where it is dilated, on the lower edge of the basal three-fourths is a line broad at the base and apex, narrow in the centre through the black color being roundly dilated down, the basal dilatation being longer, on the apical third of the inner side is a square spot, the basal femoral tooth and an irregular spot near the base of the hind tibiæ on the outer side, yellow. There are at least ten femoral teeth; the basal distinct, the apical closely pressed together. Apex of scutellum distinctly margined, the centre narrowed the sides lobed. Sides of the head along the eyes finely longitudinally striated, the striæ intertwining. Occiput closely minutely punctured. Thorax above, closely, strongly punctured, the parapsidal furrows deep. Metanotum irregularly reticulated. Pro- and mesopleuræ opaque, shagreened, appearing (especially the propleuræ) as if finely striated. Head and thorax thickly covered with white pubescence. ♀ and ♂.

Mendoza, December.

There seems to be a small spur on the middle tibiæ, and this makes the species a *Smicra* as defined by Ashmead in "Memoirs Carnegie Museum," i., p. 250, the other genera wanting this spur.

8. **Smicra spinicoxus** sp. n.

Black, a mark, twice longer than wide, narrowed below, on the sides of the lower half of the frontal depression, a curved line on the apex of the pronotum, a conical mark, the narrowed end at the base, on the sides of the apical half of the scutellum, two lines on the middle of the mesonotum, along the furrows, the upper part of the abdominal petiole, two transverse conical marks, almost united on the centre of the apex of the second segment, a large semi-circular one on the fourth, a smaller one on the last, with a fuscous line down the middle of the apical two-thirds, the four anterior knees, the femora and tibia below, a line along the top of the outer side of the hind coxæ, extending from the base to the apex, becoming slightly wider towards the apex, dilated downwards on the apical part to the teeth, the incision longer than wide counting from the top to the bottom, and slightly narrowed at the top, leaving a semi-circular black mark on the lower apical part and continued along the top of the inner side, there being below it a semi-circular mark, clear yellow; the hind tibiæ are of a darker yellow behind and are infuscated in the middle, the hind tarsi are yellow like the others. There are eight femoral teeth; the first and third are large and widely separated, the second minute; the others short, stumpy, rounded. Hind coxæ as long as the femora, armed with a minute tooth near the apex above. Wings almost hyaline, the nervures black. ♂. Length 6 mm

Frontal depression smooth, with a stout keel down the centre; the sides with curved, clearly separated striæ; face more finely transversely striated, the striæ turned up laterally. Clypeus smooth. Thorax with thimble-head like punctures, which are stronger and more clearly separated on the scutellum. Apex of scutellum with a broadly rounded raised margin which is not depressed in the middle. Metanotum coarsely irregularly reticulated. Base of propleuræ closely rugosely punctured, the apex smooth, the depression irregularly striated. Mesopleuræ coarsely rugosely punctured, almost reticulated. Metapleuræ more coarsely reticulated than the metanotum. Abdominal petiole about two-thirds of the length of the hind coxæ and not much shorter than the rest of the abdominal segments united. Head, thorax, and legs covered, not very densely, with white pubescence. The third and fourth joints of the antennæ are almost equal in length.

Mendoza, December.

9. **Smicra mendozænsis** sp. n.

Yellow, slightly tinged with rufous, the flagellum of antennæ fuscous, darker above; the mandibular teeth, a narrow line down the centre of occiput, a broader one round its lower edge, a narrow line round the base of mesonotum, one down its centre, one along the sutures, a broader one of almost equal width down the middle of the scutellum, one, narrowed at the top, on the lower three-fourths of the base of mesopleuræ in the suture, a wider spindle-shaped line on the apical suture, commencing a little above the middle and not reaching to the lower edge, a large mark, gradually dilated to the middle over the hind coxæ, and the sheath of the ovipositor, black. Hind femora with eighteen small black teeth, the basal close together. Apex of scutellum keeled, narrowed gradually to a blunt point, not incised or toothed. Metanotum irregularly reticulated in the middle and at the apex. Wings clear hyaline, the nervures black. ♀. Length 7 mm.

Head and thorax covered with blackish hair. Sides of the front obliquely strited; there is an obliquely striated depression between the hinder ocelli and the eyes. Face roundly dilated in the middle, sparsely punctured; there is a row of strong punctures on the top of the clypeus, the space between the clypeus and the eyes are closely obliquely striated, the striæ roundly curved. Pro-, mesonotum and scutellum strongly closely punctured. Metanotum bordered laterally by a stout keel; there is a keel down the middle which bifurcates near the apex, forming an area which is stoutly longitudinally striated; there are thus three areæ—two basal and a central apical one. Propleuræ from near the top smooth; the basal half of the mesopleuræ broadly smooth in the middle; the top and bottom not very strongly punctured; the roundly dilated metapleuræ much more strongly and closely punctured. The basal and apical vertical furrows on the mesopleuræ are longitudinally striated. Abdominal petiole short, about one-half longer than wide, narrowed towards the apex, about as long as the apical joint of the hind coxæ.

Mendoza, April.

OCTOSMICRA Ashm.

10. **Octosmicra curvidentata** sp. n.

Yellow, the flagellum of antennæ above, the middle of frontal depression, tips of mandibles, the occiput, except round the edges, two lines on the centre mesonotum, converging towards the apex, a longish oval spot on the centre of the lateral lobes, a transverse one at the apex, bordering the base of the scutellum, a line on the centre of the scutellum, acutely pointed at the base, widened towards the apex, which is rounded, a line bordering the basal half of the scutellum, the base of the propleuræ, the line gradually widened below, the bottom of the central depression of mesopleuræ, the line narrowed above, two spots below the hind wings, a small spot on either side of the middle of the metanotum, transverse lines, roundly narrowed on the base, on the sides of the second, third, fourth and fifth abdominal segments; the apex of the hind coxæ, a small spot on the inner and outer side of the base and apex of the hind femora, the base and apex of the hind tibiæ narrowly and the femora teeth, black. The basal two and the apical femoral teeth small, the apical stouter than the basal two and close together, the basal acuter and clearly separated; the four middle teeth are large, curved, stout, the central longer than the others. Wings hyaline, the nervures black. ♂. Length 4 mm.

Front and vertex distinctly, but not very closely or strongly punctured; the projection below the antennæ with a row of punctures in the centre. Face, except in the middle, finely, closely transversely striated. Pro- and mesothorax strongly punctured, the punctures clearly separated. Scutellum more strongly punctured than the mesonotum, its apex with a broad margin which is slightly incised in the middle of apex; there is a widely crenulated depression behind the margin. Metanotum with three rows of areæ; the basal has only small central and irregular outer areæ, the second row has them square; the third has them more irregular.

Mendoza, April.

11. **Octosmicra carinifoveata** sp. n.

Black, a spot, longer than wide, obliquely narrowed below over each antenna, a line round the apex of the pronotum with a short branch projecting obliquely from either side of the middle at the base, tegulæ, a line, rounded on the innerside, along the inner side of the parapsidal furrows, a wide conical mark (the narrowed end at the base) on either side of the basal half of the scutellum, the greater part of the top of the abdominal petiole, a narrow interrupted line, not reaching to the outer edge, on the apex of the first abdominal segment, the basal half of the second, narrow lines on the apices of the others, the greater part of the sixth, and the sides of the eighth, bright lemon-yellow. The apices of the four anterior femora above, their under side, the tibiæ except for a black longish broad line above and the tarsi rufo-testaceous, as are also the hinder tibiæ and tarsi, except for a yellow band near the base of the tibiæ; the hind femora black, a bright lemon-yellow line runs on the top from the base to the apex, becoming wider towards the apex, where the narrow black upper border is also wider; at the base this line is continued, slightly more widely to the basal tooth, and, close to the apex it is continued to the apical teeth as an irregular indentation, which becomes gradually roundly narrowed towards the teeth, it having an incision near the top of the outer part, so that it is widest below the middle; on the inner side close to the apex is a large mark, narrowed in the middle, at the base and apex and extending right across the whole surface. The apical femoral teeth are large, sharp-pointed and widely separated; the basal are small, stumpy and close to each other. Wings hyaline, suffused with fulvous, the nervures dark fulvous. ♂. Length 7 mm.

Sides of front stoutly closely obliquely striated; the depression smooth, with a stout keel down the center, ending below in a wide conical dilatation. Face closely transversely reticulated. Occiput finely, closely transversely striated. Pro-, mesonotum and scutellum closely strongly punctured, the centre of the mesonotum transversely reticulated. Apex of scutellum with a broad rounded projecting margin, which is not incised in the middle. Metanotum closely irregularly reticulated. Pro- and mesopleuræ coarsely aciculated, except the apex of the mesopleuræ, which is smooth, the metapleuræ finely rugosely punctured.

Mendoza, December.

12. **Octosmicra pilicauda** sp. n.

Black, a spot on the lower side of the front, rounded on the outer side, the upper inner half dilated inwardly and with a straight margin, more or less of the apex of the antennal scape, a line round the apex of the pronotum with a basal short branch on either side of the middle, two lines on the mesonotom along the furrows extending neither to the base nor to the apex, two somewhat triangular marks on the apical half of the scutellum, a band on the centre of the second segment, a broader complete one on the third, the apices of the other segment, the four ânterior knees, a large mark, dilated above, roundly curved at the base, extending from the top to the bottom on the inner side of the hind femora on the apical third close to but not touching the apex, the outer side except a large pyriform oblique mark, not touching the top, but reaching to the bottom at the apex of the basal tooth and extending to the third, the apex has a rounded incision on the lower half; the large basal tooth is yellow; the others are black, and there is a large semi-circular black mark over the apical four teeth; the basal tooth is large and triangular; the following three are smaller and clearly separated, the fourth is a little smaller and the following three are short, bluntly rounded and close together. There is a distinct, short tooth on the apex of the hind coxæ above. Head, thorax and legs covered with a white pile. Face closely punctured; the sides of the front strongly obliquely striated, the striæ clearly separated. Pro- and mesonotum somewhat strongly punctured; the scutellum, if anything, is still more strongly punctured; its apex is weakly bilobate. Metanotum strongly irregularly areolated; there is a larger areola on the centre of the apical slope, widest in the centre, roundly narrowed above and below. Propleuræ punctured, but not so strongly as the pronotum. Mesopleuræ smooth; near its base is a slightly oblique closely, strongly striated furrow extending from the top to the bottom. Metapleuræ closely reticulated. Abdominal petiole half the length of the hind coxæ, smooth, but not so shining and glabrous as the rest of the abdomen. The hypopygium projects as an ovipositor and is half the length of the second and following ventral segments; it is sparsely covered with longish pale hairs. Wings hyaline, suffused with fuscous; the nervures black. ♀ Length 8 mm.

Mendoza, Elgon. November.

The amount of the yellowish color on the fore legs varies, as it does also on the hinder; the yellow band, for example, near the base of the tibiæ is more clearly defined in some examples than in others.

TRISMICRA Ashm.

13. **Trismicra fortidens** sp. n.

Black, the underside of the antennal scape, a narrow line on the lower two-thirds of the inner and on the upper two-thirds of the outer orbits, a slightly broader line, narrowed outwardly on the apex of the pronotum, a broad interrupted line on the base of the second abdominal segment, a narrower one on the third, a moderately wide line narrowed towards the base and apex and a similar line on the lower basal edge extending from the base to near the middle, bright yellow. The three femoral teeth are stout, triangular, of equal size except that the apical is dilated at the apex. Wings with the basal half distinctly suffused with fuscous, the apical hyaline, the nervures black. ♀. Length 7 mm.

Face strongly transversely striated, except in the centre where there is a smooth longitudinal line, narrowed near the middle. The clypeus is broadly rounded, the middle smooth, the sides strongly punctured. Frontal depression closely transversely striated, the sides closely reticulated-punctured. Pro- and mesothorax closely, rather strongly punctured. Propleuræ smooth, the upper half, especially at the apex, irregularly longitudinally striated. Basal third of mesopleuræ depressed, shining, longitudinally striated, the striæ stout and clearly separated; the top at the base is punctured, at the apex below the tegulæ striated, the striæ running obliquely downwards. Apical margin of scutellum clearly separated, transverse, with the sides rounded. Parapsidal furrows complete. Metanotum coarsely irregularly reticulated, the lower central part with an area which is longer than wide and is roundly narrowed above. Sides of metathorax broadly rounded. Abdominal petiole about twice longer than wide. Legs smooth and shining, the hind coxæ are as long as the femora. Temples stoutly keeled. Malar space two-thirds of the length of the eyes. Head and thorax densely covered with white pubescence. The sides of the pronotum are rounded.

Mendoza, November.

ONCOCHALCIS Cam.

14. **Oncochalcis Jörgensenii** sp. n.

Black, the tegulæ, the apical third of the four anterior femora, the four anterior tibiæ except for a black-line on the middle behind, a large curved oblique mark on the apical fourth of the hind femora on the upper two-thirds, its base rounded and its apex extending on to the outer side, the base and apex of the hind tibiæ, the black central part narrower on the outer side than the yellow basal and apical parts, and extending broadly on to the upper side, bright lemon-yellow; the hind tarsi yellow, tinged with rufous. Wings clear hyaline, the nervures black, ♀. Length 5 mm.

The face, sides of front, outer orbits, apex of scutellum, the mesopleuræ, the second to sixth abdominal segments densely covered with silvery pubescence. Vertex, sides of front and inner part of malar space closely punctured; the latter broadly rounded below, margined at the edge and depressed above it. Sides of face aciculated, the middle smooth and shining, the clypeus bordered above by a rounded broad keel, below which it is flat. Propleuræ smooth, an oblique keel in the middle, below which is a thinner, almost straight one, and under the latter is a stouter obliquely curved one. Mesopleuræ smooth, broadly depressed beyond the base; the latter has the upper half smooth and bearing margined foveæ, the lower half is opaque and bearing longitudinal keels, the space between which is depressed; the upper basal part of the central portion bears seven or eight stout, clearly separated keels, the top and bottom of which are longer than the others. Metanotum regularly reticulated, the central basal area twice longer than wide, obliquely narrowed towards the apex. Basal two segments of abdomen smooth, bare, the third smooth in the centre, the rest, as are also the sides of the other segments, somewhat strongly punctured; the fourth and following segments aciculated in fhe middle.

Mendoza, February.

PERILAMPIDÆ.

PERILAMPUS Latr.

15. **Perilampus igniceps** n. sp.

Blue, the head firey red, the front in the middle at the eyes blue, the pro- and mesonotum dark blue, the scutellum blue, tinged with green, the pro- and mesopleura blue with brassy tints, a distinct brassy line down the base of the mesopleuræ, the apex of the mesopleuræ, the metapleuræ and the breast dark blue. Legs dark blue, the hind tibiæ black, the tarsi more or less testaceous. Antennal scape blue, firey red in the middle, the flagellum rufo-testaceous. Wings hyaline, the nervures black. ♀. Length 3 mm.

Head smooth and shining, bare. Clypeus large, semi-circular, distinctly separated all round. The lower half of the face in the centre forms an oval raised piece. Pro- and mesonotum with the scutellum closely, somewhat strongly rugosely punctured, the punctures running into reticulations especially on the scutellum; the sides of the middle lobe of mesonotum at the apex, broadly smooth. Propleuræ punctured above; the meso pleuræ smooth, a smooth line down the centre near the middle; there are large scattered punctures below, as is also the case with the metapleuræ. Abdomen smooth and shining.

Mendoza, March.

DIRRHINUS Dal.

16. **Dirrhinus reticulatus.** sp. n.

Black, the antennæ, tarsi and four anterior tibiæ testaceous, the antennæ darkened towards the apex; the head and thorax closely reticulated and covered with white pubescence, as are also the base of the legs; wings hyaline, the nervures black. ♀. Length 3.5 mm.

The middle of the scutellum is aciculated, not reticulated. Metanotum opaque, alutaceous, the reticulations formed by fine keels; the areola longer than wide, extending to the top of the apical slope; the base narrowed, the sides bulging roundly outwardly, the apex broadly rounded; it is bounded by a large basal area, obliquely widened at the base and with a smaller, oblique square apical one; at the apex of these are two areæ, longer than wide, shining, smooth, and rounded at the base, the outer edge is bounded by a keel. The metanotum has the apical half roundly narrowed. Pleuræ reticulated like the mesonotum except the apical half of the mesopleuræ which is closely, rather strongly obliquely striated. Abdominal petiole wider than long, aciculated, the sides with a smooth margin; the base of the second segment finely closely striated.

Mendoza, December.

EUCHARIDÆ.

SEMORA gen. nov.

Antennæ 13-jointed, placed on the middle of the head, the scape not reaching to the ocelli; the basal joints of flagellum longer than wide, the basal joint more than twice longer than wide, longer than the succeeding; the pedicle is more cylindrical, longer than wide. Centre of face roundly convex, clearly separated; clypeus is bounded laterally by oblique furrows. Malar space as long as the eyes. Parapsidal furrows deep. Scutellum roundly convex, the apical slope shorter and more rounded than the basal, the apex with a transverse furrow; the sides on basal slope bordered by a shallow furrow. Metanotum at the base on either side with a triangular depression; its centre depressed. Abdomen distinctly petiolated, the petiole about six times longer than wide and longer than the hind coxæ; the rest of the abdomen is obliquely turned upwards. Legs normal, as is also the alar neuration. The apical abdominal segments are hidden by the second. The temples are short. Ocelli in a triangle. The form of the mandibles I cannot make out, but they appear to be shorter than usual.

The type of the genus is smaller and more slenderly built than usual for the group. It comes nearest to *Orascma*, from which it may be known by the more elongated antennal joints, by the more elongated ab- dominal petiole and by the greatly elongated second abdominal segment which envelopes all the others, while in *Orasema* it is only as long as the others united.

17. **Semora xanthopus** sp. n.

Black, the head and thorax largely tinged with brassy tints, the scape of antennæ yellow, the flagellum black; the legs yellow, the coxæ dark blue; wings clear hyaline, the nervures black. ♀. Length 3 mm.

Head and thorax closely, finely, but distinctly punctured, almost bare, the abdomen very smooth and shining, the head, if anything, more strongly punctured than the thorax, the sides of the face finely marked with curved striæ. Metanotum finely closely transversely striated. Base of femora infuscated, the outerside of the hinder streaked with blue. There is a large smooth, ovoid tubercle below the fore wings; below the hind wings is a raised part, rounded above, below bordered by a furrow.

Mendoza, November.

EURYTOMINÆ.

Eurytomini.

HEIMBRA gen. n.

Antennæ 10-jointed, but the last joint may be composed of more than one joint; the scape does not reach to the ocelli, the pedicle wider than long, transversely ovoid, the following joints transverse, wider than long, the last conical, more than twice wider than long, as long as the preceding two united. Parapsidal furrows deep. Scutellum large, fully one-half longer than it is wide at the base, from which it becomes gradually narrowed towards the apex; it projects over the metanotum, its apex reaching beyond the base of abdomen. The abdomen sessile, flat, the first segment short, the second very large, more than twice longer than wide, the last segment is large, as large as the preceding three united, bluntly rounded. The penultimate ventral segment is projected backwards as a large triangular incision, between which lies the hypopygium filling up the incision, the ovipositor lying in the middle. Hypopygium large, bluntly rounded at the apex. Stigmal branch curved, not dilated at the apex, about two-thirds of the length of the marginal branch; the humeral branch is thickened at the apex; post-marginal vein twice the length of marginal.

The malar space is two-thirds of the length of the eyes; the occiput roundly, deeply incised; the base of the pronotum is roundly triangularly narrowed in the middle. The head, thorax and abdomen are strongly punctured, almost reticulated, in places umbilicately punctate.

The anterior ocellus is clear from the frontal depression. Hind tibiæ with two apical spurs. Basal half of middle tibiæ narrowed.

A genus readily known from all those hitherto described by the greatly elongate triangular scutellum and second abdominal segment.

18. **Heimbra acuticollis** sp. n.

Rufous, the sternum and metathorax black, the head, mesonotum and back of abdomen more or less irregularly marked with black; the antennæ rufous, or with the basal half black. Head, thorax, and abdomen umbilically strongly punctate, the scutellum more strongly than the mesonotum, and the abdomen less strongly and with the punctures running more into reticulations; the basal slope smooth, margined round the top and sides. Legs of a brighter red color than the body. Wings hyaline, the nervures black. ♀. Length 4 mm.

Head, thorax and legs covered with short white pubescence; the abdomen is more shortly and sparsely haired. The apical slope of the metanotum is smooth, obliquely sloped and furrowed down the middle. The last ventral segment roundly bluntly projects, the projection clearly separated above. The scutellum is more densely covered with white hair than the mesonotum; its apex bears longer hair.

Mendoza, November.

CLEONYMIDÆ.

TRIGONODERUS.

19. **Trigonoderus areolatus** sp. n.

Dark brassy-green, the abdomen dark coppery colored, the antennal scape, pedicle, and the legs, except the coxæ, rufous; wings clear hyaline, the nervures pale testaceous; the head, thorax and legs covered with white pubescence; the abdominal segments fringed with white pubescence. Metanotum with four areæ wider than long, the apical two larger than the basal; the base of the metapleuræ is bounded by a keel. Head and thorax finely minutely punctured; the head in front below the eyes finely closely longitudinally striated, the striæ more or less curved. Mandibles rufous, the teeth black. ♀. Length 3 mm.

The flagellum of antennæ dark fuscous. Basal three joints of antennæ of equal length, shorter than the following. Malar space slightly longer than the eyes; there is a shallow depression on it, below the eyes; the depression is longer than wide and is roundly, slightly narrowed below. The parapsidal furrows distinct on basal half of mesonotum only. The abdomen is as long as the head and thorax only; it becomes gradually narrowed from the apex of the second segment.

Mendoza, December.

ICHNEUMONIDÆ.

CRYPTINÆ.

Cryptinini.

LAMPROCRYPTUS gen. n.

Transverse median nervure in hind wings broken below the middle. Transverse median nervure in forewings received shortly behind the transverse basal. Areolet large, 5-angled, hardly narrowed in front, receiving the recurrent nervure beyond the middle. Disco-cubital nervure unbroken. Metanotum with two transverse keels, the sides stoutly toothed; the spiracles large, linear; there is a longish triangular area in the centre of the base, behind the transverse keel. Post-petiole much widened, its middle on the basal part bordered by weak keels. Front depressed, keeled down the centre. Clypeus not very clearly separated from the face. Labrum prominent. Scutellum roundly convex, but not projecting over the mesonotum. Parapsidal furrows not reaching to the end of the mesonotum. The radial cellule short, widely distant from the apex of the wings, which are uniformly fuscous violaceous. Temples nearly as wide as the eyes, strongly roundly narrowed. Basal two joints of flagellum equal in length. Body metallic. Tarsal joints strongly spinose. Metapleural keel complete.

Type: *Cryptus Kinbergi*, Holmgren, from Buenos Ayres, "Eugenies Resa," p. 397.

Allied to *Cyanocryptus*,* Cam., which may be known from it by the metanotum being without transverse keels, by the transverse median nervure in hind wings being broken close to the middle, by the metanotum having a gradully rounded slope from the base to the apex, which is not the case with the present species.

In the arrangement of Ashmead (Bull. U. S. Nat. Mus., xxiii., p. 43) this genus runs close to *Pyncocrptus*, Thoms.; in that of Schmiedeknecht (Opus. Ich., Fasc. vi) it would also run near that genus, except that the hind femora are not thick, the hind tarsi short (in the present genus long), there is only one keel on the metanotum, the metathoracic spiracles are oval; the hind tarsi are shorter than the tibiæ, in *Lamprocryptus* as long as them and the metanotum is not toothed, nor is the body metallic, nor the wings uniformly violaceous. In *Lamprocryptus* the metanotum is closely reticulated, the abdomen finely, minutely punctured and the ovipositor is shorter than the abdomen.

20. **Lamprocryptus Kinbergi,** Holm., *l. c.*, *supra*.

Mendoza, March.

The propleuræ are longitudinally striated, finely above, more strongly below; the scutellum is very shining and only very sparsely punctured; the metanotum is closely reticulated; the coxæ are blue and violaceous, the trochanters have the basal joint blue, the apical black; the fore tarsi are colored like the tibiæ, but slightly darker in tint; the middle pair are infuscated, except at the base, the posterior black, the apex of the hind tibiæ being also black.

Cryptus chalybaeus, Tasch. Zeits. f. d. ges. Naturwiss., xlviii., p. 63, is a closely allied, if not identical, species.

---

* "The Entomologist," 1903, p. 121.

21. **Callicryptus pulchrifasciatus** sp. n.

Ferruginous-rufous, the flagellum of antennæ black with joints five to ten and the apex of the fourth yellowish-white, the four hinder tibiæ, tarsi and the apex of the four hinder femora narrowly black; wings dark fuscous, a yellowish-fulvous cloud extending from the base of the transverse basal and near the base of the transverse median nervures to the commencement of the radial nervure and a smaller one, pyriform in shape, with the apex distinctly narrowed to a bluntly rounded point, extending from the costa, across almost the middle of the radial cellule, but nearer its apex than its base, to the cubitus, touching the outside of the areolet, the contracted part beginning at the middle of the latter; there is a broad, similarly colored band across the middle of the hind wings. Palpi and apex of mandibles black. ♀. Length 13 mm., terebra 8 mm.

Malar space one-third of the length of the eyes. Face, front and vertex shagreened. Mesonotum finely and weakly punctured, the pleuræ more strongly punctured, the centre of the propleuræ irregularly striated, more strongly at the base than at the apex. Parapsidal furrows weakly indicated at the base only. Metanotum weakly shagreened, the basal transverse keel narrow but distinct; the second is interrupted in the middle and is stronger on the outerside. The abdominal petiole has the basal half on the sides somewhat strongly, vertically striated. The parastigma and stigma are colored like the cloud; the areolet is large, 5-angled, slightly narrowed in front, and receives the recurrent nervure shortly beyond the middle; the discocubital nervure is unbroken and the transverse median nervure interstitial.

The ♂ is similarly colored. The amount of black on the legs seems to vary.

Mendoza, February and March.

Mesostenini.

ATELEONOTUS gen. nov.

Parapsidal furrows absent. Metanotum broadly rounded behind, closely reticulated, with neither transverse keels nor spines, the spiracles linear. Areolet distinct, longer along the transverse cubital nervures than along the radus, the second transverse cubital nervure more distinct than usual; the recurrent nervure received in its apex. Transverse median nervure received very shortly beyond the transverse basal; the discocubital nervure is unbroken. Transverse median nervure in hind wings broken near the bottom. Wings violaceous, with a hyaline cloud near the apex. Clypeus separated from the face, its apex transverse with the sides round. Labrum hidden. Malar space half the length of the eyes. Claws long, slender. Tarsi closely spinose. Abdominal petiole long, longer than the second segment; the post-petiole not much dilated; the spiracles prominent. As usual the antennæ are stout and are ringed with white; the first joint of the flagellum is a little longer than the second. Thorax more than three times longer than wide. Metathorax large, as long as it is wide at the base.

A genus of *Mesostenini* easily known by the absence of parapsidal furrows and of transverse keels on the metanotum and by the violaceous wings.

22. **Ateleonotus ruficeps** sp. n.

Black, the head, antennal scape, the lower part of the pronotum, the propleuræ near the base and the fore femora and tibiæ red; wings fuscous violaceous, a clear hyaline cloud in the fore wings outside and touching the transverse cubital and recurrent nervures and extending to the middle of radius and backwards to the anal nervure. The seventh to twelfth joints of the antennæ are white. ♀. Length 17 mm., terebra 5 mm.

Face and clypeus closely punctured, the face roundly dilated in the middle. Front strongly obliquely striated, keeled down the middle; the vertex smooth, the occiput closely, somewhat strongly punctured. Mesonotum strongly, closely reticulated; the scutellar depression smooth. Scutellum strongly punctured. Metathorax more closely reticulated than the mesonotum. Propleuræ punctured above; the rest stoutly, closely striated. Mesopleuræ closely punctured, the apical part more or less striated. Basal segments of abdomen weakly, finely punctured. The fore femora are blackish on the basal half behind, their tibiæ have the basal half infuscated behind; the four front coxæ smooth, the hinder closely, rather strongly punctured; the tarsi below are closely covered with rufous spines. Palpi and apex of mandibles black, the base of the latter rufous. There is a smooth shining line on either side of the apical half of the mesonotum. The pubescence on the mesonotum is short and dense; on the metanotum it is longer. The abdomen above is bare and shining.

Mendoza, March.

LAUSOBA gen. nov.

Transverse median nervure received shortly behind the transverse basal. Areolet rather small, 5-angled, the nervures almost meeting in front. The transverse median nervure in hind wings broken far below the middle. Parallel nervure in middle of brachial cellule. Metanotum completely areolated, the spiracles small, oval, twice longer than wide; the areola semi-circular; the lateral areæ wider than long, rounded on the inner side, the outer obliquely widened from the apex to the base on the outer side. Antennæ short, the base of flagellum narrowed, its basal joints not greatly elongated. Clypeus not separated from the face, transverse, with the sides rounded. Parapsidal furrows indicated only on the basal slope. Scutellum large, wider than long, broadly convex, the sides not keeled. Abdomen strongly punctured, the first segment with a projection on the sides at the base; it becomes gradually wider from the base to the apex; the dorsal keels reach only to the spiracles.

The radius originates from shortly beyond the middle of the stigma; the disco-cubital cellule at base more than twice as wide as the second discoidal cellule at apex. Apex of metonotum with three cellules. Abdominal petiole curved, wide at apex. The third joint of flagellum in the ♂ three times longer than wide. Head large. The whole body very shining; the metonotum strongly punctured. The posterior outer angle of discoidal cellule acutely angled. Scutellar depression not keeled. Tibiæ not spinose. Postpetiole punctured in the middle, the sides smooth. The abdomen is longish oval. Antennæ without a white ring; the bullæ on recurrent nervure separated.

Comes nearest to *Stiboscopus*, in which the areola is as long as broad and pentagonal, in the present genus it having only two angles; the parallel nervure is received below the middle of the brachial cellule; according to Ashmead in *Stiboscopus* the radius originates from the middle of stigma. In *Stiboscopus* the legs are called long and slender; here they are not long and are distinctly stout; in it, too, the basal area has parallel sides, while with *Lausoba* its apex is abruptly narrowed.

23. **Lausoba forticeps** sp. n.

Black, smooth and shining, the metathorax and abdomen strongly closely punctured, the face, clypeus, mandibles except at the apex, a line on the inner orbits, broadly roundly narrowed on the inner side, an oval spot on the vertex behind the eyes, the lower three-fourths of outer orbits, the line rounded above, the malar space, a line on the sides of the pronotum, tegulæ, two lines on the centre of the apical half of the mesonotum, the sides of the scutellum, its apex slightly more narrowly, post-scutellum, the outer posterior apical areæ of metanotum, tubercles, the base of propleuræ, two large lines on the mesopleuræ, one near the top, the other below the upper with the apical half roundly slightly incised, the lower with the apical half obliquely narrowed below, a spot below the hind wings, the greater part of the metapleuræ, a spot, wider than long, and with the apex incised, on either side of the base of mesosternum, lines on the sides of the basal three abdominal segments and complete ones on the others, whitish-yellow. Basal three segments of the abdomen red, the sides of the third and the whole of the others, black; ventral keel whitish-yellow. Wings hyaline, the stigma testaceous, the nervures black. Legs red, the coxæ and trochanters white, the former black at the base, the posterior broadly so, the apex of the hind femora, the base of the tibiæ and the hind tarsi, black. ♂. Length 6 mm.

Mendoza, December.

A stoutly built, broad species.

OPHIONINÆ.

Nototrachini.

24. Eugnomus flavomaculatus n. sp.

Rufous, the second and following segments of the abdomen darker colored, blackish above, the antennæ black, the scape yellow below; the eye orbits, the outer broadly below, the face, clypeus, base of mandibles, palpi, a line on the pronotum, the two not uniting at the base, tegulæ, scutellum, a small irregular spot in the centre of the metanotum close to the base, the sides broadly, a line on the lower edge of the propleuræ, tubercles, almost the lower half of the mesopleuræ, the mark slightly obliquely narrowed towards the apex, an irregular triangular spot below the hind wings and the basal third of the abdominal petiole, pale yellow. Legs rufous, the hinder darker colored, the four anterior whitish-yellow in front, the base of the hind tibiæ yellow, the hind tarsi fuscous, yellow narrowly at the base of the metatarsus. Wings hyaline, the stigma and nervures black, the parastigma white. ♀. Length 7 mm., terebra 2 mm.

Eyes large, distinctly converging below; the malar space small. Face and clypeus sparsely punctured. Front and vertex smooth, except the former, which is keeled down the middle and transversely striated. Mesonotum not so strongly punctured, the sides near the base transversely striated. Scutellum roundly convex, wider than long, sparsely punctured, the sides at the base keeled. Metanotum at the base with a semi-circular narrow area, extending from one side to the other, and with one or two reticulations in the middle; the rest is closely, strongly reticulated; the metapleuræ more finely and irregularly reticulated, almost smooth at the base above; the spiracles of medium size, ovate, about two and one-half times longer than wide. Outside the basal metanotal area is a stout curved keel, forming an area open on the outer side. Propleuræ smooth above, the rest stoutly striated; the mesopleuræ more finely at the base above, the apex is smooth, this smooth part being longer than the striated base; the lower part is closely, irregularly punctured.

Mendoza, March.

One example has the centre of the front, of the vertex, the occiput, the upper apical part of the mesopleuræ and the lower part of the metapleuræ black, the apex of the first abdominal segment above, the second above and the apical segments, black. Probably the amount of black varies in this species; the yellow is uniform in the examples seen.

Anomalini.

25. **Atrometus albopilosellus** sp. n.

Black, densely covered with white pubescence, the head, except the front and vertex, the occiput, and the apex of mandibles, a narrow line on the apical two-thirds of the pronotum, the tegulæ and the palpi, pale yellow; the abdomen ferruginous, the base and apex of its first segment, a line on the top of the second to fifth and the whole of the apical two with the genital armature, black; legs: the anterior pair yellow, tinged with rufous above; the middle pale rufous, their coxæ and trochanters yellow; the hind legs of a much deeper red color, the coxæ, apical two-thirds of the basal joint of the trochanters, the apical joint above, base of femora, the tibiæ above and the tarsi for the greater part (the basal joints above, the apical entirely), black. Wings hyaline, the costa pale at the base, the stigma testaceous, the nervures black. ♂. Length 14 mm.

Head strongly closely punctured, the front and vertex more closely than the face; the latter is raised in the middle above and has there a furrow. Pro- and mesothorax closely punctured, the scutellum more widely than the mesonotum, its apex finely, closely, transversely striated. Metanotum coarsely reticulated, its apex produced into a distinct neck; the metapleuræ opaque, finely, closely rugose; they are more densely pilose than the mesopleuræ. The wings reach close to the apex of the second abdominal segment.

Mendoza, March.

Campoplegini.

HARISTAEUS gen. nov.

Wings without an areolet; the transverse median nervure interstitial; the apical nervures in hind wings obsolete. Clypeus distinctly separated from the face; its apex broadly rounded. Eyes large. Malar space distinct. Metanotum with small round spiracles; it is completely areolated; the areola acute at the base, angled laterally, opened at the apex, therefore continuous with the posterior median area. Parapsidal furrows distinct. Post-petiole dilated, closely longitudinally striated. Abdomen compressed from the second segment; it is smooth, except the post-petiole; the sutures are distinct; the ovipositor is longer than the abdomen.

The spurs are moderately short, the longer hinder one is as long as the third tarsal joint. The basal joint of the hind tarsi more than half the length of the tibiæ; the apical two joints are of equal length. Stigma large, broadly triangular, the radius issuing from its middle. Radial cellule short, wide, the basal abscissa of the radius one-third of the length of the second; the disco-cubital nervure broadly rounded, unbroken. There is no malar furrow. Mandibles equally bidentate.

In the arrangement of Dr. Ashmead (Bull. U. S. Nat. Mus., xxiii., 91) this genus runs close to *Podogaster*, with which it has no near relationship, and that genus differs from it more particularly in the metanotum not being areolated and in its abdomen being greatly elongated. The present genus looks like a *Campoplex*.

26. **Haristæus nigrifrons** sp. n.

Rufo-testaceous, the front broadly, occiput except round the edges, the three lobes of the mesonotum broadly, the basal outer areæ of the metanotum, the breast and the lower part of the metapleuræ, black; the eye orbits broadly and the tegulæ clear pale yellow, the face of a slightly darker yellow and with a black spot in the centre above. Mandibles yellow broadly at the base, rufous beyond the yellow, the teeth black. Legs of a brighter, lighter rufous color than the body, the apex of the hind tibiæ and the hind tarsi black, the base of the metatarsus paler. Wings hyaline, the stigma and nervures black. ♀. Length 6 mm., terebra 2 mm.

Front aciculated, furrowed down the middle. Pro- and mesothorax finely closely punctured, the pleuræ slightly more strongly than the top; the metanotum is more strongly punctured than the mesonotum; the posterior median area transversely striated. There is a distinct petiolar area, longer than wide; the basal lateral areæ are large, four-angled, gradually, obliquely narrowed from the base to the apex, which is transverse and one-fourth of the width of the base; outside this is a triangular area, the narrowed part being at the spiracles; there are thus two lateral areæ on either side of the areola; there are two large outer lateral areæ extending from the base to the apex; the outer reaches to the coxæ; the inner is bounded by a curved keel. There is a wide curved striated belt down the middle of the mesopleuræ.

Mendoza, February.

27. **Hmorphota tricolorata** sp. n.

Black, opaque, alutaceous, the abdomen, especially at the base and apex, shining; the under side of antennal scape and the mandibles, except their apex, pale yellow; the fourth and following segments of the abdomen ferruginous; the genital armature black; legs rufous, the apex of the coxæ narrowly and the four anterior trochanters yellow; the rest of the coxæ, the tarsi, the greater part of the hind trochanters and the hind tibiæ, black; wings hyaline, the stigma and nervures black; the areolet small and with a pedicle longer than it. ♂. Length 7 mm.

Face and temples densely covered with dull silvery pubescence. Thorax closely minutely punctured. The metanotum regularly areolated; the areola three times longer than wide, the widened base (behind the transverse keels) roundly narrowed; there is a petiolar area; from the keels it becomes narrowed towards the apex, which is transverse; the posterior median area is transversely roughened; the spiracles are small, broadly oval. First abdominal segment longly nodose at the apex; it is as long as the second. The apical nervures in the hind wings are obliterated.

Mendoza, March.

This species agrees fairly well with the description of *Amorphota* Fœr., it certainly cannot be referred to any of the other genera with the clypeus and face forming one piece.

BRACONIDÆ.

BRACONINÆ.

IPHIAULAX Fœr.

The species of this genus in the collection have the bodies of a bright red color, with black legs and dark fuscous wings with pale ochraceous stigma. They are very smooth and shining. The following table shows the main differences of the species:

Wings not pale at the base, uniformly dark fuscous.

Head, scutellum and metanotum black ....**Weyenbergi.**

Head, scutellum and middle of metanotum red ....**Lynchii.**

Wings pale at the base.

Occiput and outer orbits red, mesonotum with three black marks. **Holmbergii.**

Occiput and outer orbits black, mesonotum not maculate with black.

Apical half of scutellum red, apex of occiput with a transverse red mark, lower part of mesopleuræ with a longitudinal red streak..**adornatus.**

Scutellum and vertex enterly black, lower part of mesopleuræ not streaked with red....................................**Brethesii.**

28. Iphiaulax Lynchii sp. n.

Bright-red (the color of red sealing wax), the antennæ, the face, tips of mandibles, palpi, a mark covering the front, roundly narrowed behind and enclosing the ocelli, the lower half of the occiput broadly laterally, two marks close to each other on the apex of the mesopleuræ, the upper longish oval, the lower narrower and conical, the narrowed end below, the breasts, the black on the prosternum extending on to the pleuræ, line, twice longer than wide, transverse at the base, its apex rounded, on the lower apical half of the mesopleuræ, the metapleuræ and the legs, black; the four anterior tibiæ and all the tarsi dark rufous. Wings dark fuscous, the stigma, except narrowly at the base and apex, pale ochraceous yellow, the first cubital and the discoidal cellules with the usual hyaline small clouds; the third abcissa of radius twice the length of the basal two united; the recurrent nervure interstitial. Tegulæ red, like the thorax. ♀. Length 12 mm., terebra 7 mm.

Smooth and shining, including the abdominal furrows. Antennal scape three times longer than wide, its apex projecting into a tooth below. Face closely rugose, covered with black hairs; the antennal tubercles, the lower half of the clypeus and the oral region rufous. Temples a little longer than the eyes, rounded behind. Abdomen as long as the thorax, and wider than it; smooth, the area on second segment becoming narrowed towards the apex, but not to a sharp point, the apex being blunt and transverse. Suturiform articulation wide, with a long oblique apical branch, which commences near the middle of the segment; there are smooth furrows on the apices of the third and fourth. The penultimate ventral segment and the hypopygium are black.

Mendoza, March.

29. Iphiaulax Weyenbergii sp. n.

Bright-red (the color of red sealing wax), the antennæ, head, palpi, mandibles, scutellum, metathorax, the breasts, lower edge of propleuræ, a large mark on the apical half of the mesopleuræ, the upper part obliquely narrowed, the centre dilated semi-circularly towards the base, the apex of the penultimate segment and the greater part of the hypopygium, black; wing blackish fuscous, the stigma pale ochraceous yellow, its apex black; the third abscissa of radius twice the length of the second. ♀. Length 10 mm., terebra 7 mm.

Head and metathorax densely covered with white pubescence. Face alutaceous, opaque. Temples a little longer than the eyes, obliquely narrowed. The abdomen has only the suturiform articulation; it is smooth and has a shallow, curved apical lateral branch which extends beyond the middle of the segment; the area on the second segment extends to the apical fourth of the segment.

Mendoza, May.

30. **Iphiaulax Holmbergii** sp. n.

Bright-red (the color of red sealing wax), the antennæ, base of mandibles, palpi, face, except the sides and lower edge narrowly, front except on the lower outer edge at the antennæ slightly, and the orbits narrowly, the black on the front prolonged broadly on to the half of the vertex on the sides, more narrowly behind the ocelli, this part having small triangular dilatation, a mark on the sides of the occiput below, two broad lines close together on the central basal half of the mesonotum, a wider one on each side on the apical three-fourths, the metanotum, except for a mark in the centre, its base abruptly narrowed into a cone, the breasts, the central lower half of the propleuræ, this black part longer than the basal or apical, the lower part of the mesopleuræ, the black at the apex narrowed and commencing near the top, the rest commencing shortly above the centre, the apical upper part obliquely narrowed and rounded at its junction with the other; below the basal half is separated from the black breast by a red line. Metapleuræ black, except under thc wings. Wings fuscous, the base hyaline to near the transverse basal nervure, the first cubital cellule hyaline except at the base below, and the usual hyaline spot in the discoidal cellule; the stigma light ochraceous; the third abscissa twice as long as the basal two united. Abdomen smooth and shining, the plate on second segment narrowed to a point and extending to the apical fourth of the segment; it is bounded by deep smooth furrows, which unite with a lateral one, the two forming a large tringular area; the four furrows at the base are separated by a squarish tubercle at the base of the segment; on the base of the fourth and fifth segments are obliquely curved smooth furrows. The four anterior tarsi and the apex of the tibiæ are dark rufous. ♂. Length 8 mm.

Mendoza, March.

31. **Iphiaulax adornatus** sp. n.

Red, the antennæ, head except for a transverse mark of equal width, twice wider than long, in the centre of the vertex behind, the base and apex of scutellum, the space between it and the wings, the post-scutellum, metathorax, except for a streak in the middle of metanotum, the breasts, the lower part of the propleuræ, a large mark on the apical three-fourths of the mesopleuræ in the middle, the mark below becoming gradually obliquely widened, until it unites at the apex with the black on the sternum ; its base above becomes obliquely sloped, forming a triangle with the apex above ; the mark is then continued straight to the base, which is bluntly rounded, the narrowed basal part forming almost a square. The base of the propleuræ is black to near the top ; the red central part being triangular. Wings fuscous, the basal cellules lighter colored, especially at the base ; the first cubital cellule clearly hyaline except at the lower basal corner, the cloud in the discoidal cellule quadrate, longer than usual ; the recurrent nervure is received in the apex of the first cubital cellule, clearly distant from the transverse cubital nervure. Area on base of second cubital cellule two-thirds of the length of the segment, not narrowed to a point, its apex half the length of the base. The suturiform articulation is finely striated in the middle, the apical furrow distinct, but shallow, the outer edge of the area not half the total length ; the area becomes gradually narrowed from the outer to the inner side ; there are distinct furrows on the apices of the fourth and fifth segments. ♂. Length 10 mm.

The apical two ventral abdominal segments are black. The face is covered with short, white, intermixed with longer black hair ; the metathorax is densely covered with white hair. There is an obscure red narrow line in the centre of the orbits.

Mendoza, March.

Comes near to *I. Holmbergi*, having like it the base of the wings pale and the mesopleuræ with a red wedge projecting into the black ; *Holmbergi* may be known by the mesonotum having three black marks, its scutellum is entirely red, all the tarsi are testaceous, the outer orbits and the outer edge of the vertex are not black as in the present species, and the area on the second abdominal segment is narrower and more sharply pointed ; the outer raised area on the base of the third segment is narrower on the outer side and it reaches nearer to the middle ; it is also, owing to its being narrower, not so near to the middle of the segment.

32. **Iphiaulax Brethesii** sp. n.

Bright red (the color of red sealing wax), the antennæ, head, mandibles, palpi, scutellum, metathorax, prosternum, lower edge of propleuræ, mesosternum, mesopleuræ from the oblique basal furrow, leaving a red triangular upper basal part, the apical segment of the abdomen and the legs, black ; wings fuscous, the base of the anterior hyaline to near the transverse basal nervure, the greater part of the first cubital cellule, a small cloud below the first transverse cubital nervure, and the basal half of the hind wings are also hyaline, stigma pale ochraceous, its basal fourth black Area on base of second abdominal segment reaching to the base of the apical fourth, it is smooth, has a round tubercle in the middle of the base and becomes gradually narrowed to the apex, the narrowed apical part is bordered by wide, deep furrows Sutuniform articulation wide, the central part finely, closely striated, the lateral apical branch is roundly curved, there is a narrow furrow on the base of the fourth segment, and a less distinct one on the base of the fifth Tegulæ black Face and metathorax densely covered with long white pubescence Base of mandibles rufous ♂ Length 9 mm

Mendoza, February.

DORYCTINÆ.

33 **Liobracon ruficornis** sp n

Black, the flagellum of antennæ and palpi dark red, the pronotum the middle lobe of mesonotum, the centre between it and the scutellum, metathorax, abdomen, and hind legs bright red, the apex of the four anterior femora, the tibiæ and tarsi rufo testaceous, wings fuscous, paler at the base, the nervures black, the stigma pale ochraceous, black at the apex, the base of the radial cellule narrowly and the first cubital cellule, except behind, hyaline the third abscissa of radius almost twice the length of the basal two united, the first abscissa of radius curved forward, the second rounded backwards the recurrent nervure received in the apex of the first cubital cellule, the transverse median nervure shortly beyond and the transverse basal and very obliquely sloped The basal radian cellule in the hind wings is about one-fourth of the length of the apical Head, thorax and legs covered with longish clear white hair, the apical abdominal segments bear shorter white hair ♀ Length 10 mm, terebra 5 mm

Face closely, somewhat strongly transversely striated, almost reticulated above, the top in the middle strongly, but not closely punctured Front and vertex smooth and shining the front not much depressed Ocellar region distinctly separated and raised Thorax and abdomen smooth and shining Pronotum nearly as long as it is wide at the apex Middle lobe of mesonotum large, clearly separated, roundly convex Parapsidal furrows smooth Scutellar depression large, deep, its sides rounded, the centre with a stout keel Middle of metanotum with a shallow furrow, stoutly keeled down the middle First abdominal segment wider than long, the second is shorter, has a narrow furrow down the middle and a wider, deeper, oblique one on either side, its apex is bounded by a smooth, roundly curved furrow, there is a narrow, shallow curved furrow on the base of the fifth and sixth segments, the last has the apex black The sides of the metanotum bear large deep, clearly separated punctures, the metanotum is separated from the metapleuræ by a furrow which is crenulated at the bottom. Malar space half the length of the eyes.

Mendoza, November.

EVANIIDÆ.

34. **Evania Haarupi** sp. n.

Head, thorax and hind coxæ, except at the apex, red, the rest black; wings clear hyaline, the nervures black; the apical joint of the tarsi of a dark red color; the hind spurs fuscous. Head, thorax and legs covered with a white down. Sides of the face and the top finely closely striated; the central part of the face with a few scattered punctures and bordered laterally by a deep, slighty curved furrow. Centre of front with a clearly defined keel; the part on either side of this finely closely obliquely striated, the outer side with large, clearly separated punctures. Vertex smooth, except for a few punctures outside the ocelli, which are in a curve, the hinder being separated from each other by the same distance as they are from the eyes. Metasternal fork with diverging branches. ♀. Length 4.5 mm.

Antennæ long, the apex reaching beyond the apex of the abdominal petiole, slightly thickened towards the apex; covered with a white pile; the third joint not much longer than the fourth; the underside of the flagellum fuscous. Malar space nearly as long as the eyes. Apex of the mandibles and the teeth black. Centre of mesonotum strongly punctured in the centre, the punctures widely separated; the outer edges much more weakly and sparsely punctured. The scutellum is much more strongly punctured than the mesonotum; the metanotum is reticulated, more finely, irregularly and closely on the apical slope in the centre; the part between the metanotum and the pleuræ is obliquely striated, with a keel down the middle. Abdominal petiole shining, sparsely punctured; above it bears on the sides two stout longitudinal keels and, at the apex below, is a shorter one. Propleuræ at the apex above broadly obliquely striated, the striæ becoming shorter below; the lower depressed middle part is strongly longitudinally striated. The long spur of the hind tibiæ does not quite reach to the middle of the metatarsus.

Mendoza, March.

35. **Evania mendozaensis** sp. n.

Black, the antennæ and legs red, the coxæ, apical half of hind joint of middle trochanters, the greater part of the hinder and the hind tarsi, black; wings hyaline, the nervures black. Face densely covered with white pubescence, smooth, a fine furrow down the sides. Front strongly but not very closely punctured, a fine keel down the centre. Vertex with some scattered punctures; the temples smooth. Hind ocelli separated from each other by a distincly greater distance than they are from the eyes. Malar space one-third of the length of the eyes. Basal half of mandibles rufous. Mesonotum with wide, curved, crenulated parapsidal furrows, the space between them sparsely strongly punctured; the outer lobes smooth. Scutellum strongly punctured, the centre not so closely as the rest, the apical central part being smooth. Metanotum closely punctured, the punctures moderately large, clearly separated; the apical slope is densely covered with white pubescence, closely weakly irregularly reticulated. The pleuræ opaque, except for a smooth shining space, narrowed behind, above the middle of the mesopleuræ, which are finely closely longitudinally striated on the basal half above; the apical upper part alutaceous; the lower part punctured strongly, but not deeply. Metapleuræ finely rugose and irregularly, but not closely at the base and below the apex, reticulated. Metasternal forks triangular, obliquely diverging. Abdominal petiole smooth. ♂. Length 4 mm.

Third joint of antennæ, if anything, shorter than the fourth, the apical two joints black, the two before them infuscated. The long spur of the hind tibiæ is clearly distant from the middle of metatarsus and is not much longer than the second joint.

Mendoza, March.

BETHYLIDÆ.

XESTOBETHYLUS gen. nov.

Eyes large, occuping more than half of the head in front, reaching to the base of the mandibles, pilose. Ocelli prominent, in an equilateral triangle. Mandibles with a large lower tooth, broad at the base, narrowed towards the apex, which is bluntly rounded; there are two upper teeth, not very clearly separated at the apex, but with a distinct furrow between them, the furrow broad and backwards extending beyond them. Clypeus triangular, raised in the middle, the sides from the top obliquely sloped. Antennæ 13 jointed, stout pilose, the third joint not much longer than the fourth, the last three joints equal in length. Parapsidal furrows narrow, but distinct; there is also a lateral sternal furrow. Scutellum longer than it is wide at the base, where it is bounded by a transverse furrow; the sides are furrowed; it is not quite so long as the mesonotum. Metanotum as long as the pro- and mesonotum united, not narrowed towards the base, strongly aciculated, keeled down the centre. Wings with a distinct stigma, a long radius reaching close to the apex of the cellule, a distinct costal cellule and two large basal cellules, the anterior being longer than the other. Anterior femora not more swollen than the others. Fore tibiæ with one, the others with two spurs.

The pronotum is nearly as long as the head, and is distinctly longer than the mesonotum; there is a curved furrow along the lower part of the propleuræ. The first abdominal segment is twice longer than the second; the abdomen bears no tubercles on the second segment. Tarsi longer than the tibiæ. Claws simple.

Comes nearest to *Dissomphalus*, Ashm., which may be known from it by the second abdominal segment being longer than the first, and bearing two small, round, wart-like tubercles, by the mandibles being quadridentate, and by the anterior basal cellule being much longer than the hinder, and gradually narrowed to an acute point, not wide at the apex as in Ashmead's genus. Judging from Ashmead's figure of *Dissomphalus* the scutellum is not much widened towards the apex as it is in the present genus where it is narrowed as in *Isobrachium*.

36. **Xestobethylus pallidipes** sp. n.

Black, shining, the thorax more so than the head, and the abdomen more than the thorax, the antennæ rufo-testaceous, paler at the base, the mandibles rufous, with black teeth; the legs pallid testaceous, much paler than the antennæ; abdomen rufo-testaceous. Wings very clear hyaline, very iridescent, the nervures and stigma testaceous, the costal cellule at the base of the stigma clearer than the rest, almost white. Pro- and mesonotum with distinct, clearly separated punctures, the scutellum very smooth and shining. Metanotum strongly aciculated; its central keel extends from the base to the commencement of the apical slope. Upper part of the meso- and metapleuræ smooth, bare and very shining, the lower and the sternum opaque and bearing shallow, distinct, clearly separated punctures. Mesosternum bordered by a fine furrow. ♀. Length 5 mm.

Body and legs covered with a short white pubescence. Metatarsus as long as the following joints united. Palpi testaceous. Apical three abdominal segments infuscated at the base. Genital armature large, prominent. Apical abdominal segments more prominent than the others. The scutellum becomes gradually narrowed towards the apex.

Mendoza, December.

INDEX.

The names of new genera and of new species are followed by the name of the Author.

PAGE
Ablautus 151, 178
    flavipes 179, 180
    mimus 179, 181
    rubens 179, 181
    rufotibialis *Back* 179, 182
    trifarius 179, 183
Acarina, New species 401
Ammoplanus eriogoni *Rohwer*.101
Amorphola tricolorata *Cam*......443
Archilestris 152, 216
    magnificus 217
Asilinæ 151
Ateleonotus *Cameron* 437
    ruficeps *Cameron* 438
Atrometus albopilosellus *Cam*.441
Caligonus 402
    cardinalis *Ewing* 403
Callicryptus pulchrifasciatus
    Cam 437
Callinicus 154, 330
    calcaneus 340
Ceraturgopsis 152, 239
    cornutus 240
Ceraturgus 153, 233
    aurulentus 234
    cruciatus 234, 235
    ? dimidiatus 234, 236
    ? niger 239
    nigripes 234, 238
Chrysocera 154, 340
    pictitarsis 342
Cophura 155, 375
    bella 379
    brevicornis 377, 380
    clausa 377, 381
    cristata 377
    fallei *Back* 377, 378
    fur 377, 381
    scitula 377, 382
    trunca 377, 383

PAGE
Cryptognathidæ 402
Cyrtopogon 153, 257
    alleni *Back* 258, 261
    aurifex 259, 261, 272
    bimacula 258, 262
    callipedilus 259, 260, 268
    cerussatus 259, 260, 291
    cretaceus 259, 261, 287
    cymbalista 259, 260, 269
    dasyllis 259, 277
    dasylloides 259, 278
    dubius 259, 283
    evidens 259, 260, 288
    falto 258, 263
    gibber 259, 283
    leucozonus 259, 260, 282
    longimanus 259, 278
    lutatius 258, 265
    lyratus 258, 265
    maculosis 283
    marginalis 258, 267
    montanus 259, 260, 280
    nebulo 259, 294
    nigricolor 259, 284
    nugator 259, 260, 289
    plausor 259, 260, 270
    positivus 259, 261, 290
    praepes 259, 260, 271
    princeps 259, 261, 273
    profusus 259, 260, 286
    pulcher *Back* ...259, 261, 274
    rattus 259, 260, 285
    rejectus 260, 289
    rufotarsus *Back*.259, 260, 275
    sudator 259, 261, 271
    tibialis 285
    varipennis 259, 295
Dasypogoninæ 137, 151
Deromyia 154, 352
    angustipennis 354

PAGE
Deromyia bigoti..............354, 357
  bilineata..............354, 356
  discolor..............354, 358
  hypomelas..............354, 359
  perplexa..............354, 360
  platyptera..............354, 361
  pulchra *Back*..............361
  rufescens..............354, 362
  sallei..............354, 364
  symmacha..............354, 365
  ternata..............354, 366
  umbrinus..............354, 367
  winthenii..............354, 369
Dicolonus..............153, 246
  simplex..............247
  sparsipilosum *Back*..............247
Dioctria..............153, 250
  albius..............251
  nitida..............251, 253
  parvula..............251, 253
  pusio..............251, 254
  resplendens..............251, 255
  rubida..............251, 255
  sackeni..............251, 255
  vera *Back*..............251, 256
Diodontus argentina *Rohwer*...104
  cockerelli *Rohwer*..............105
  florissantensis *Rohwer*...107
  fraternus *Rohwer*..............106
  neomexicanus *Rohwer*...106
  vallicolæ *Rohwer*..............104
  v. salicis *Rohwer*..............105
Diploplectron ashmeadi
  Rohwer..............122, 124
  bidentatus..............124
  bidentatiformis
  Rohwer..............121, 124
  brunneipes..............124
  cressoni *Rohwer*......123, 124
  ferruginosus..............124
  florissantensis
  Rohwer..............122, 124
  fossor *Rohwer*..............120, 123
  foxii..............124
  relativus *Rohwer*.....123, 124

PAGE
Diploplectron rufoantennatus
  Rohwer..............120, 124
Diplotaxis..............1, 92
  abnormis. *Fall*..............20, 78
  acerba *Fall*..............18, 64
  ænea..............21, 90
  ambigua *Fall*..............18, 66
  angularis..............21, 89
  anthracina *Fall*..............18, 71
  anxius..............18, 70
  arcuata *Fall*..............19, 75
  arizonica..............11, 25
  atlantis *Fall*..............14, 44
  atratula..............15, 53
  basalis *Fall*..............19, 73
  belfragei *Fall*..............14, 43
  beyeri..............17, 59
  bidentata..............20, 77
  bowditchi *Fall*..............11, 25
  brevicollis..............14, 37
  brevidens..............16, 57
  brevisetosa..............12, 28
  carbonata..............17, 63
  cephalotes *Fall*..............18, 67
  chiricahuæ *Fall*..............21, 86
  compacta..............15
  conformis *Fall*..............13, 34
  confusa *Fall*..............21, 88
  connata..............16, 54
  corvina..............17, 62
  costulata *Fall*..............13, 36
  cribulosa..............11, 24
  curvaticeps *Fall*..............20, 77
  densicollis *Fall*..............15, 52
  deutella *Fall*..............14, 41
  dubia..............19, 76
  errans *Fall*..............20, 84
  excavata..............15, 51
  fimbriata *Fall*..............16, 56
  fissilabris *Fall*..............12, 32
  fossipalpa *Fall*..............16, 57
  frondicola..............19, 72
  frontalis..............15, 50
  harperi..............20, 79
  haydenii..............14, 40

PAGE
Diplotaxis hispida *Fall*........12, 29
illustris *Fall*..............17, 58
ingenua *Fall*............18, 65
insignis....................14, 42
knausii 12, 31
languida....................20, 81
lengii *Fall*.................19, 74
levicosta *Fall*............21, 87
levicoxa *Fall*............14, 39
liberta......................15, 48
macronycha *Fall*.......16, 55
marginicollis *Fall*......18, 67
maura *Fall*...............19, 72
mentalis *Fall*............13, 33
mimosæ *Fall*............11, 22
misella *Fall*..............21, 91
mœrens....................17, 61
muricata....................12, 29
obscura.....................15, 46
pacata...........................16
pacta............................55
parallela *Fall*............14, 46
parvicollis *Fall*..........14, 38
peninsularis *Fall*.......18, 70
pinguescens *Fall*.......19, 72
planidens *Fall*...........18, 65
polita *Fall*.............. ..20, 83
popino......................11, 23
prominens..... 15
puberula....................12, 27
pubipes.....................18, 68
pumila *Fall*...............20, 82
punctata....................21, 86
punctipennis..............17, 61
punctulata 18, 69
residua *Fall*..............13, 34
rufa..........................15, 50
rufiola *Fall*...............17, 63
rugosioides................11, 22
schæfferi *Fall*...........13, 32
semifoveata *Fall*........14, 38
sierræ *Fall*...............14, 45
sordida 11, 22
sparsesetosa...............12, 30
subangulata................15, 52

PAGE
Diplotaxis subcostata.........15, 49
sulcatula *Fall*...........17, 60
tarsalis.....................20, 82
tenebrosa *Fall*..........13, 35
tenuis.......................21, 91
texana 20, 80
thoracica *Fall* 19, 75
trementina *Fall*.........18, 69
tristis 15, 48
truncatula 21, 85
villosa *Fall* 12, 26
Dirrhinus reticulatus *Cam* 432
Dizonias 52, 218
pilatei..........................221
tristis. 219
Echthodopa....................153, 248
formosa 248
pubera...................248, 249
Ephuta boulderensis *Rohwer*...133
Eugnomus flavomaculatus
Cam..........................440
Eupalidæ.............................401
Eupalus...............................402
pectinatus *Ewing*...........402
Evania Haarupi *Cam*.............448
mendozaensis *Cam*.........448
Gymnobates...................409, 410
longus *Ewing* 410
Haristaeus *Cameron*..............442
nigrifrons *Cam* 442
Heimbra *Cameron*..................433
acuticollis *Cam*..............434
Heteropogon...................154, 318
johnsoni................319, 320
lautus..... ....319 321
ludius 319, 322
macerinus..............319, 323
nigripes.................319, 325
patruelis................319, 325
phœnicurus............319, 326
rubidus..................319, 327
senilis...................319, 328
vespoides 318, 329
Holcocephala 153, 308
abdominalis 309

PAGE
Holcocephala calva................309
Holopogon.....................153, 311
    atripennis *Back*............312
    guttula.................312, 313
    lautus...................312, 314
    nitidiventris.................314
    phœonotus............312, 315
    seniculus................312, 315
    snowi *Back*...........312, 316
    umbrinus *Back*.......312, 317
Hoplodermidæ......................416
Hoploderma..........................416
    lurida *Ewing*,...............417
Hymenoptera, new..................99
Iphiaulax.............................443
    adornatus *Cameron*.444, 445
    Brethesii *Cameron*...444, 446
    Holmbergii *Cam*.....444, 445
    Lynchii *Cameron*..........444
    Weyenbergi *Cameron*.....444
Lamprocryptus *Cameron*.........435
    Kinbergi......................436
Laphrinæ............................151
Laphystia.......................153, 225
    flavipes.................227, 229
    limatula.................227, 229
    opaca....................227, 229
    sexfasciata.............227, 228
Lasiopogon.....................153, 296
    arenicola......................297
    bivittatus...............297, 298
    opaculus................297, 299
    terricola................297, 300
    tetragrammus.........297, 301
    quadrivittatus...............302
Lausoba *Cameron*.................438
    forticeps *Cameron*.........439
Leptogastrinæ.........137, 151, 155
Leptogaster....................151, 155
    annulatus..............157, 159
    atrodorsalis *Back*....157, 159
    badius....................158, 160
    brevicornis.............158, 161
    eudicranus.............158, 162
    flavipes.................158, 163

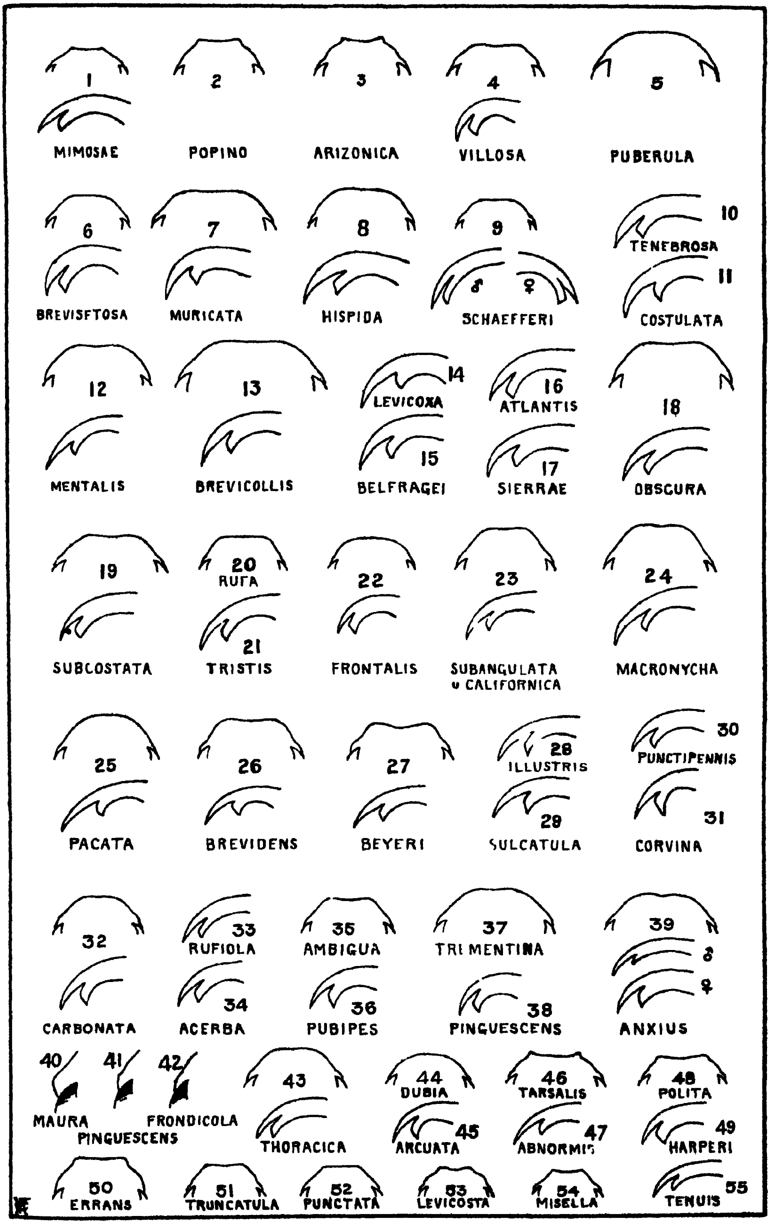
PAGE
Leptogaster hirtipes..157, 158, 164
    inciscularis.............158, 165
    murinus.................158, 166
    obscuripennis.........158, 167
    ochraceus....................168
    pictipes.................157, 168
    scapularis....................169
    schæfferi...............157, 170
    testaceus...............157, 172
    tenuipes................158, 172
    virgatus..........157, 158, 173
Lestomyia......................154, 370
    fraudigera....................371
    sabulonum....................372
Leucospis bicaniculata *Cam*....420
    pulchriceps *Cam*...........419
    varicollis *Cam*..............421
Liobracon ruficornis *Cam*........447
Lysiphlebus crawfordi *Rohwer*.135
Metopogon.....................153, 303
    gilvipes.......................304
    punctipennis..........304, 305
Microstylum...................152, 212
    galactodes...................213
    morosum...............213, 214
Microtrombidium....................408
    nigrum *Ewing*..............408
Miscophinus cyanurus *Rowher*.125
    galei *Rohwer*................124
    maurus *Rower*..............126
    nigrescens *Rowher*.........125
Mutilla briaxus......................132
Myelaphus.....................152, 241
    lobicornis.....................243
    melas....................243, 244
    rufus....................243, 245
Neoliodes............................415
    concentrica...................415
Neophyllobius.......................405
    harti *Ewing*.................405
Nicocles.......................155, 383
    abdominalis..................385
    æmulator...............385, 386
    argentatus.............385, 387
    dives.....................385, 388

PAGE

- Nicocles pictus........385, 389
  - politus........385, 390
  - rufus........385, 392
- Niteliopsis........108
  - affinis *Rohwer*..109, 110, 113
  - fossor *Rohwer*........109, 116
  - foxii........109
  - inermis........109, 110
  - licidis *Rohwer*........111
  - lucidus........109
  - modestus *Rohwer*....109, 116
  - niger *Rohwer*........109, 115
  - parvus *Rohwer*........110, 113
  - plenoculoides........109, 114
  - sayi *Rohwer*........109, 114
  - striatipes........108
  - vierecki *Rohwer*..108,110,112
- Nothridæ........415
- Notoglossa pacifica *Rohwer*.....119
- Octosmicra carinifoveata *Cam*..428
  - curvidentata *Cam*........427
  - pilicauda *Cam*........429
- Oncochalcis Jorgensenii *Cam*...430
- Oribatidæ........408
- Oribata........409, 411
  - clavata *Ewing*........411, 413
  - figurata *Ewing*........411, 412
  - laminata *Ewing*........411
  - subaquila *Ewing*....411, 412
- Oribatella........409, 414
  - magnilamellata *Ewing*...414
- Ospriocerus........151, 183
  - abdominalis........185
  - eutrophus........185, 186
  - minos........184, 187
  - rhadamanthus........185, 187
  - ventralis........185, 188
- Oxybelus denverensis *Rohwer*..118
  - manni *Rohwer*........117
  - polygoni *Rohwer*........116
- Passalœcus fasciatus *Rohwer*....99
  - mandibularis........100
  - relativus........100
- Pelops........409
  - latipilosus *Ewing*........409

PAGE

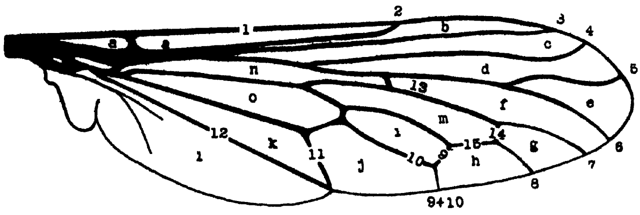
- Pemphredon cockerelli *Rohwer*.103
- Perilampus igniceps *Cam*........431
- Photopsis capricornis *Rohwer*..131
  - seminanula *Rohwer*........130
- Pisonopsis birkmanni *Rohwer*..129
- Plesiomma........153, 305
  - funesta........307
  - indecora........307
  - leptogaster........307
  - lineata........307
  - unicolor........307
- Proctotrypes florissantensis *Rohwer*........134
- Psilocurus........152, 222
  - modestus........223
  - nudiusculus........223, 224
- Pycnopogon........154, 329
  - cirrhatus........330
- Raphiginathus........404
  - tessellatus *Ewing*........404
- Rhyncholophidæ........406
- Rhyncholophus........406
  - longipalpus *Ewing*........407
  - tumidus *Ewing*........406
- Robber-flies of N. America.....137
- Saropogon........154, 344
  - abbreviatus........345
  - combustus........345, 347
  - coquillettii *Back*......345, 348
  - dispar........345, 349
  - hyalinus........345, 351
  - luteus........345, 351
  - semiustus........345, 351
- Scleropogon cinerascens *Back*..208
  - helvolus........208
  - picticornis........209
  - similis........209
- Semora *Cameron*........432
  - xanthopus *Cameron*.......433
- Sphageus........152, 211
  - chalcoproctus........212
- Smicra mendozænsis *Cam*.......426
  - ornatifrons *Cam*........425
  - spinicoxus *Cam*........426
- Spilochalcis pulchripes *Cam*.....424



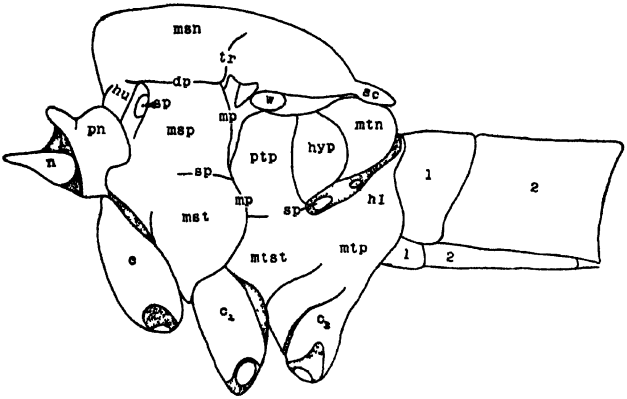
FALL ON COLEOPTERA.

PAGE
Spilosmicra leptogastra *Cam*...422
  Jensen-Haarupii *Cam*.....423
Stenopogon......................151, 189
  æacidinus...............193, 201
  albibasis.................192, 197
  breviusculus 192, 196
  californiæ...............192, 194
  cinerascens *Back*......193, 208
  consanguineus........193, 204
  gratus 192, 193
  helvolus..................193, 208
  inquinatus..............192, 198
  jubatus 192, 195
  latipennis...............193, 205
  longulus 193, 203
  modestus................192, 200
  morosus..................192, 199
  nigritulus......................197
  nigritus 192
  nitens 193, 202
  obscuriventris 192
  ochraceus 207
  picticornis 193, 209
  pumilus 193, 206
  similis 209
  subulatus 193, 202
  tenebrosus.............193, 206
Stichopogon 154, 331

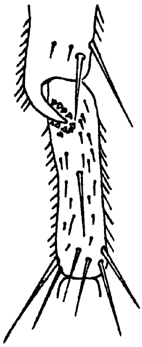
PAGE
Stichopogon abdominalis 332
  argenteus 332, 334
  fragilis...................332, 334
  trifasciatus.............332, 335
Stigmus inordinatus 102
  i. universitatis *Rohwer*...102
  lucidus *Rohwer*..............102
Tachytes minor *Rohwer* 127
  minutus *Rohwer* 128
Taracticus 154, 373
  octopunctatus 374
Tetranychidæ 404
Timulla briaxus 132
Townsendia 151, 174
  minuta 176
  niger *Back*.....................175
  pulcherrima *Back*...........177
Triclis 152, 230
  flavipilis 232
  tagax 231
Trigonoderus areolatus *Cam*....435
Trismicra fortidens *Cam* 430
Trombidiidæ 408
Trypoxylon cockerellæ *Rohwer*.130
Willistonia *Back*.............154, 337
  bilineatus.......................338
Xestobethylus *Cameron*..........449
  pallidipes *Cameron* 450



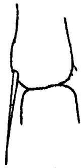
1



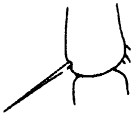
2



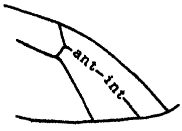
3



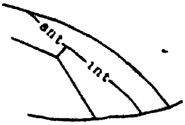
4



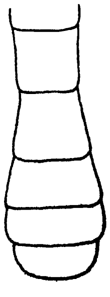
5



6

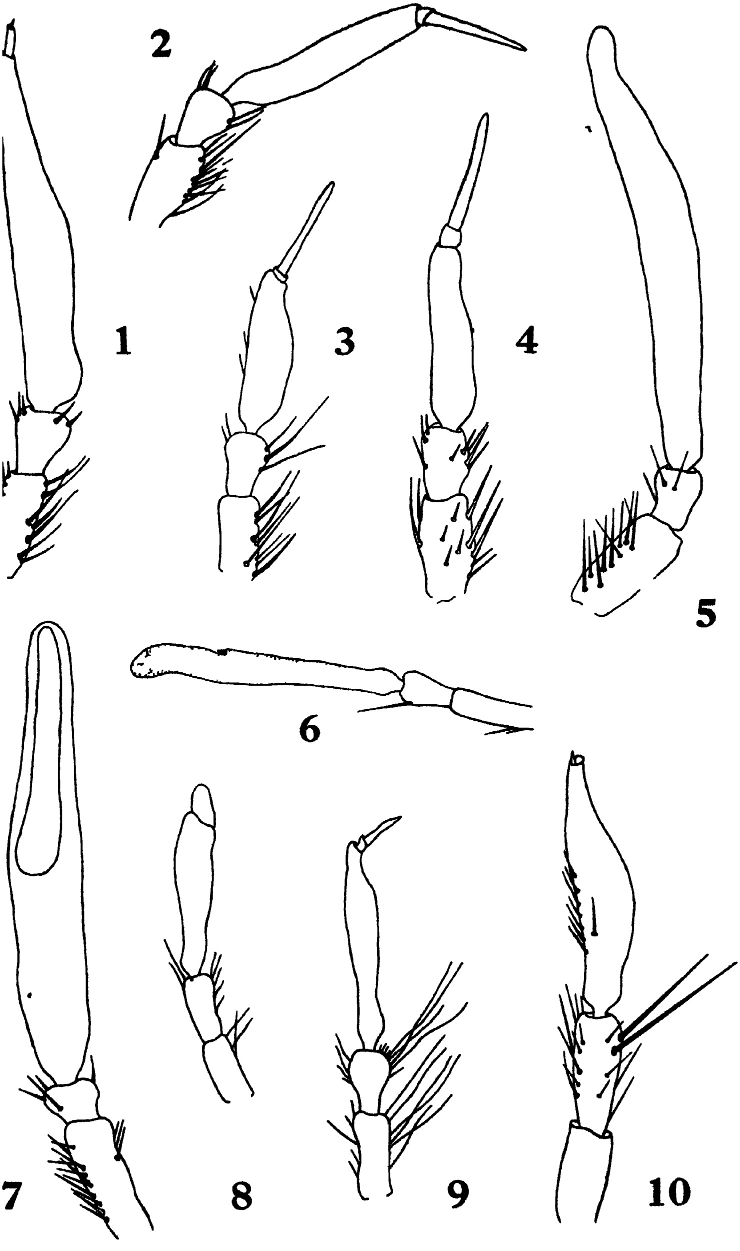


7

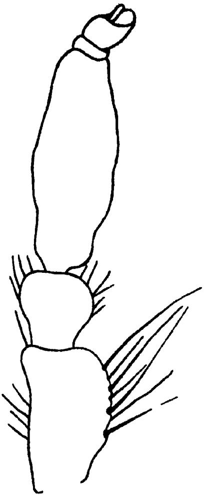


8

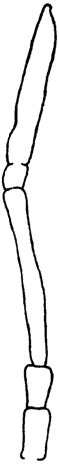
BACK ON DIPTERA.



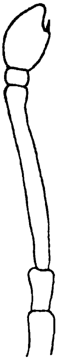
BACK ON DIPTERA.



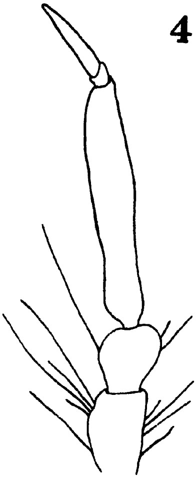
1



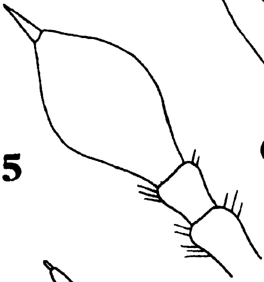
2



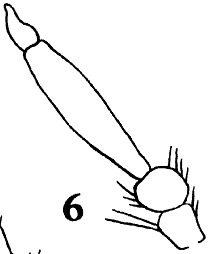
3



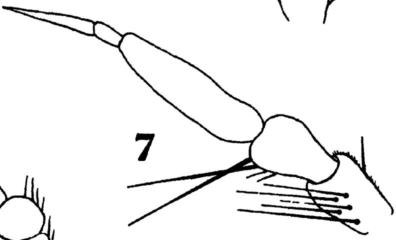
4



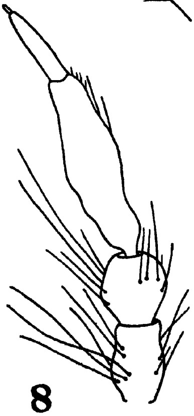
5



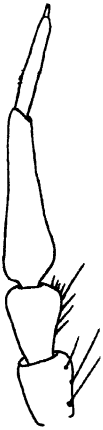
6



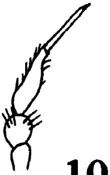
7



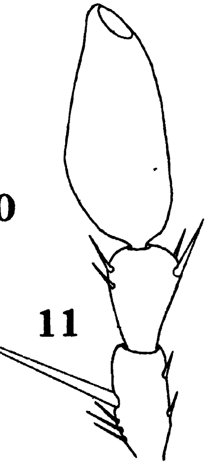
8



9

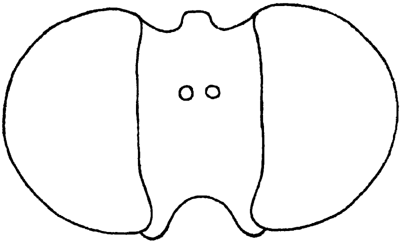


10

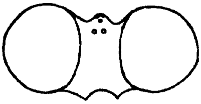


11

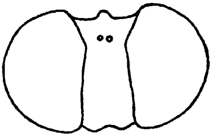
BACK ON DIPTERA.



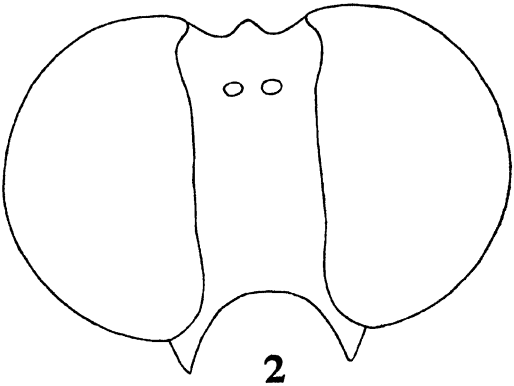
1



4

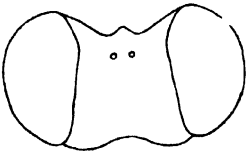


5

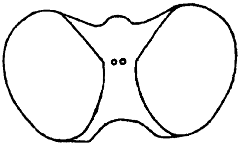


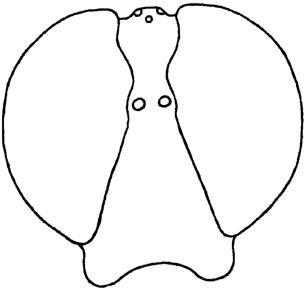
2

6



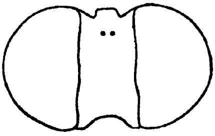
7



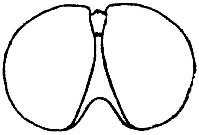


3

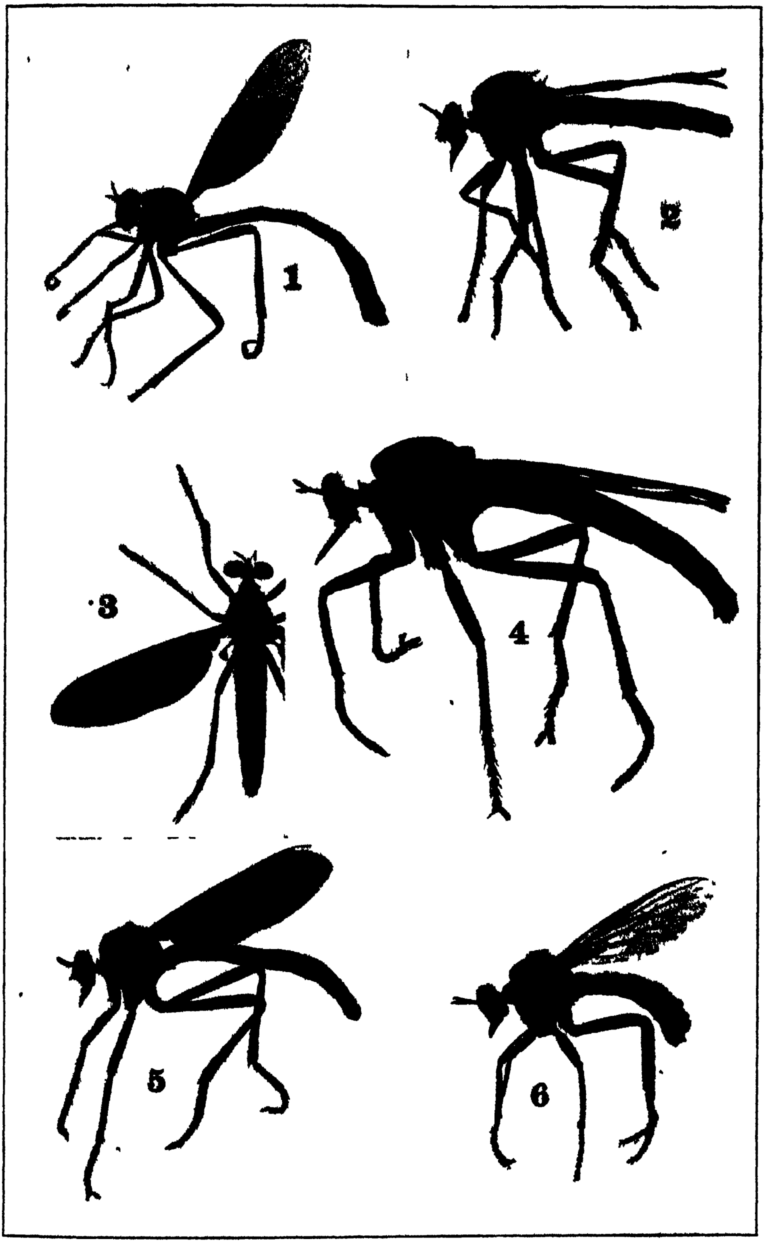
8



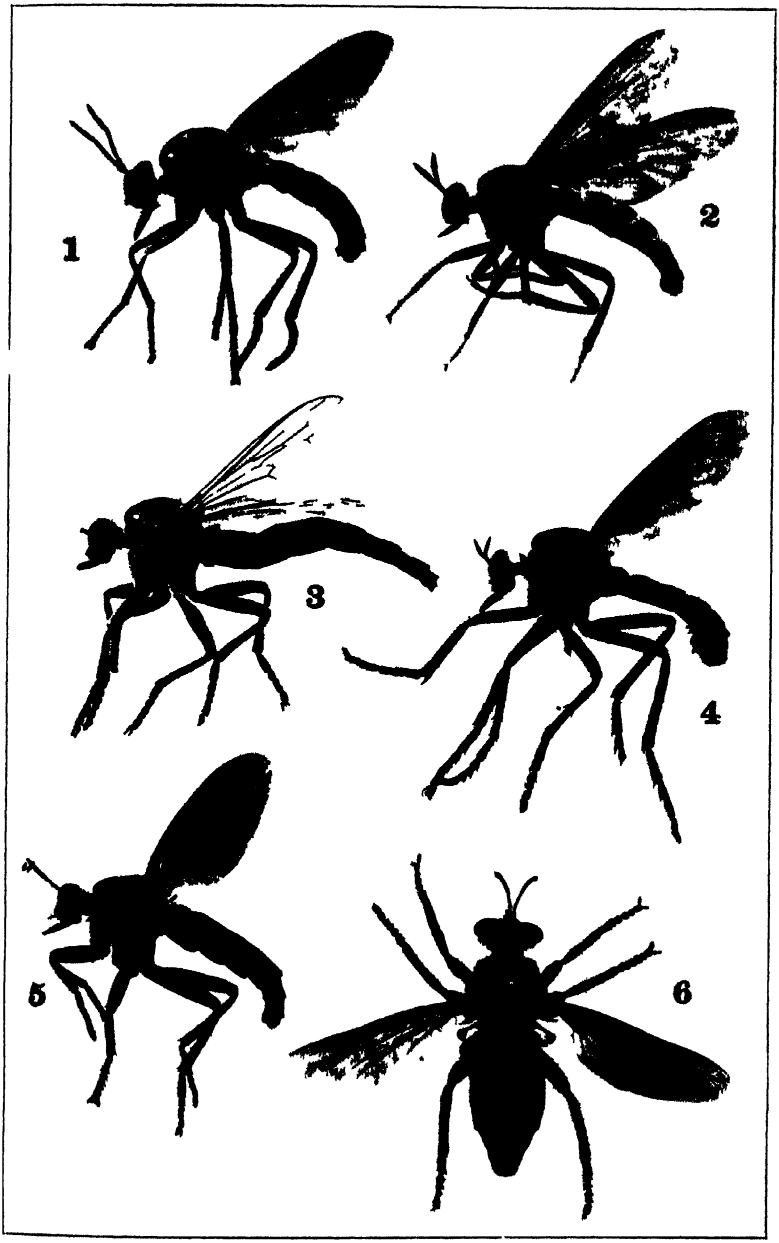
9



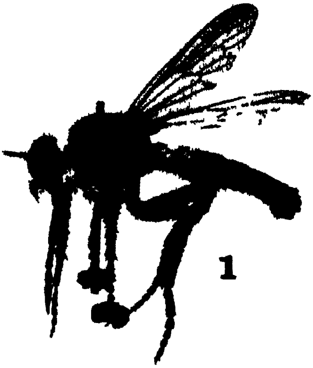
BACK ON DIPTERA.



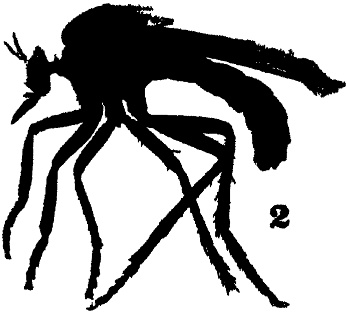
BACK ON DIPTERA.



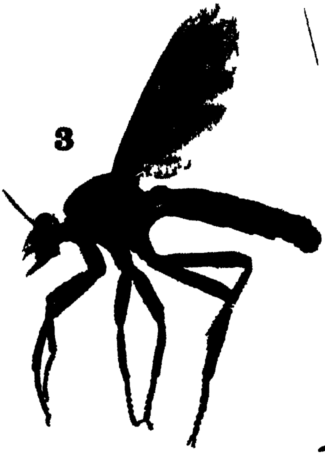
BACK ON DIPTERA



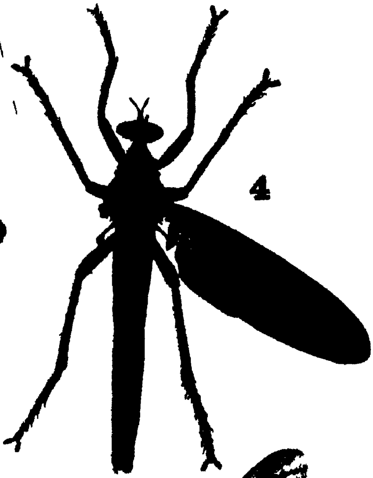
1



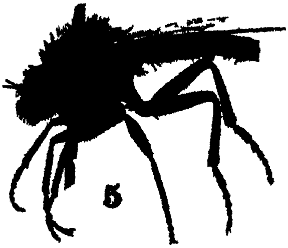
2



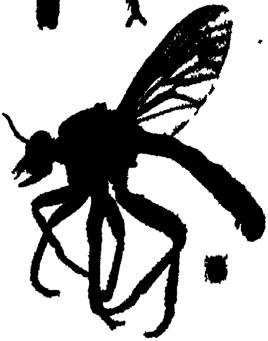
3



4

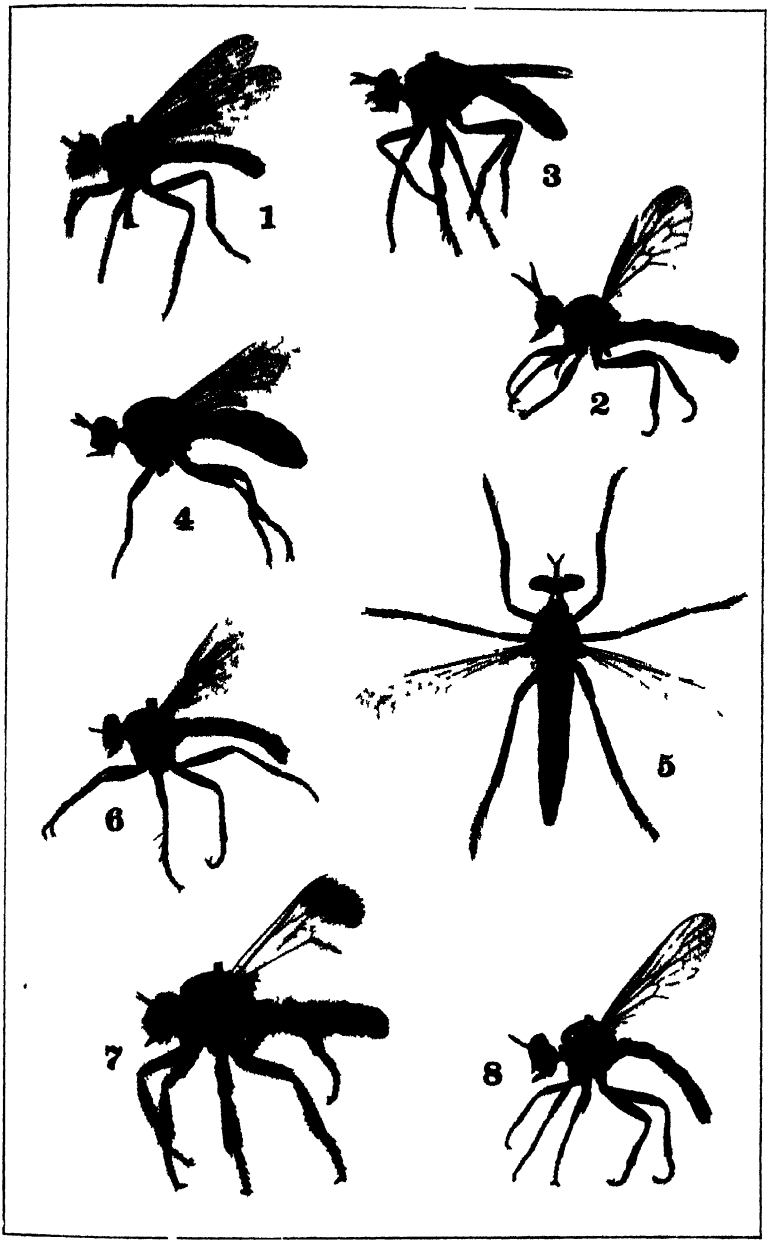


5

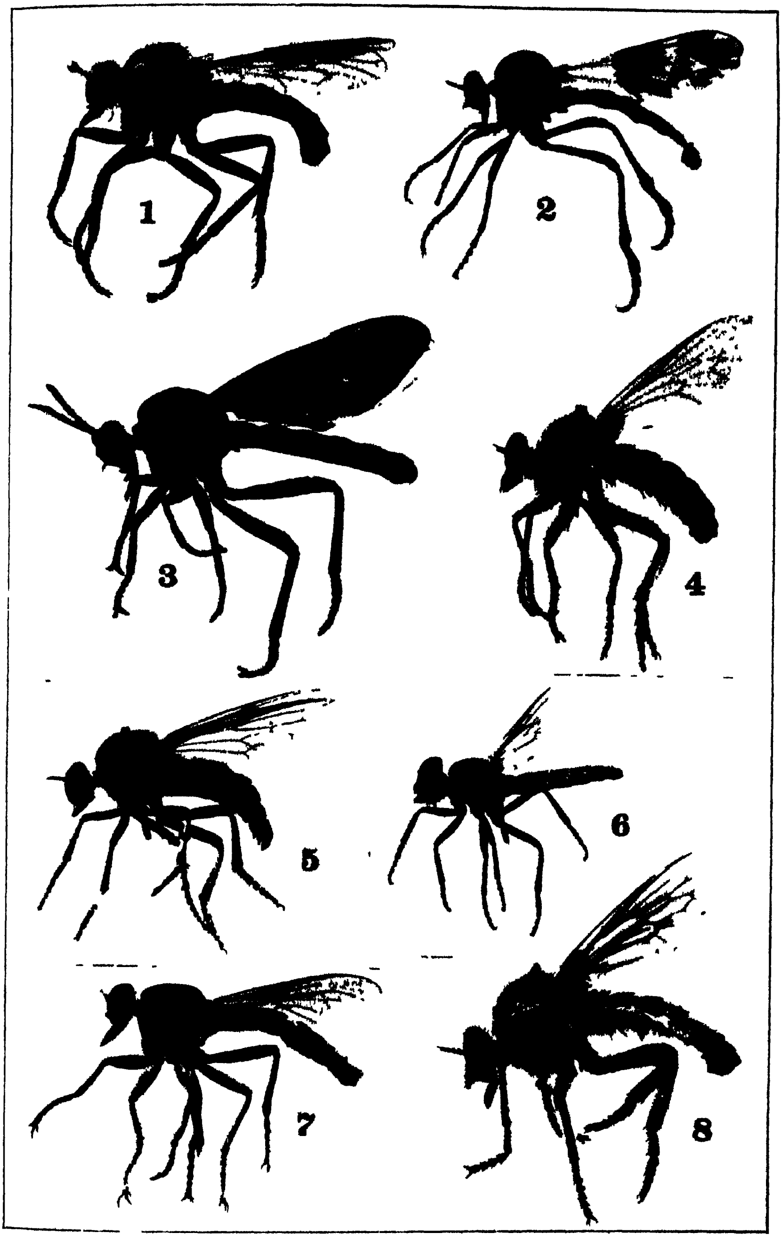


6

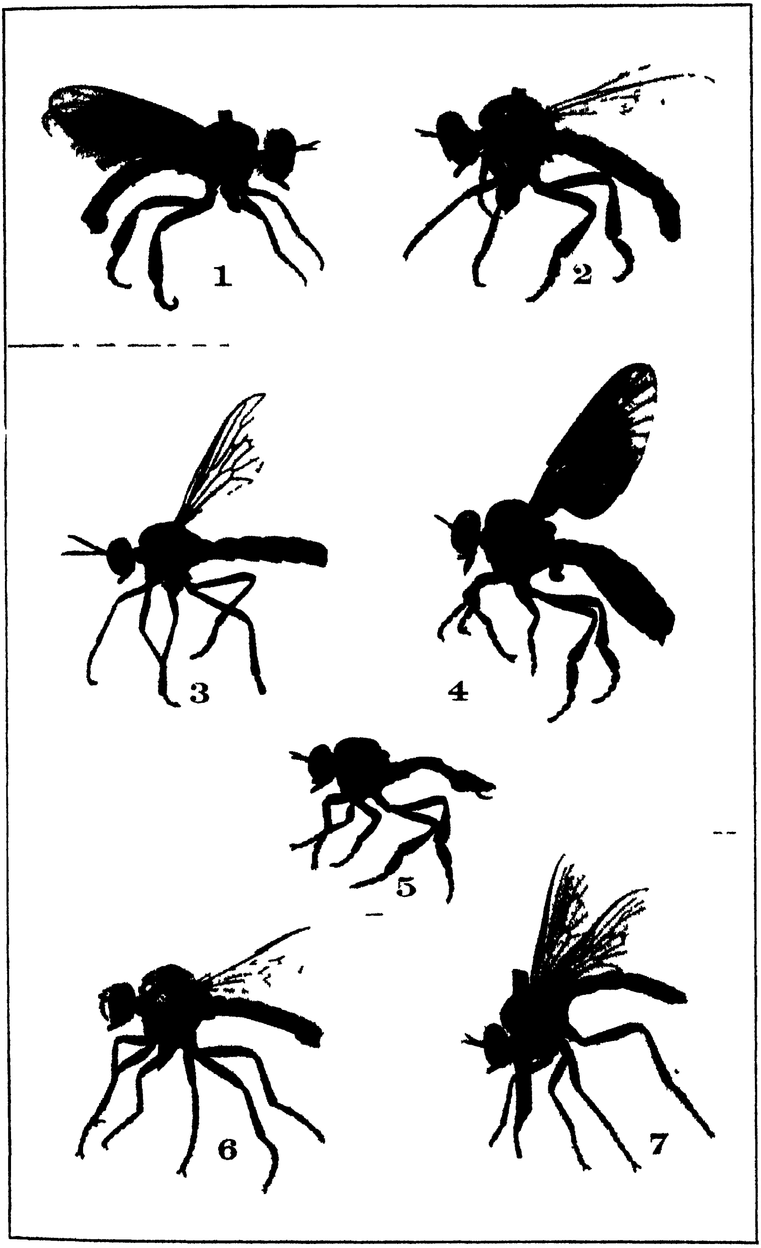
BACK ON DIPTERA.



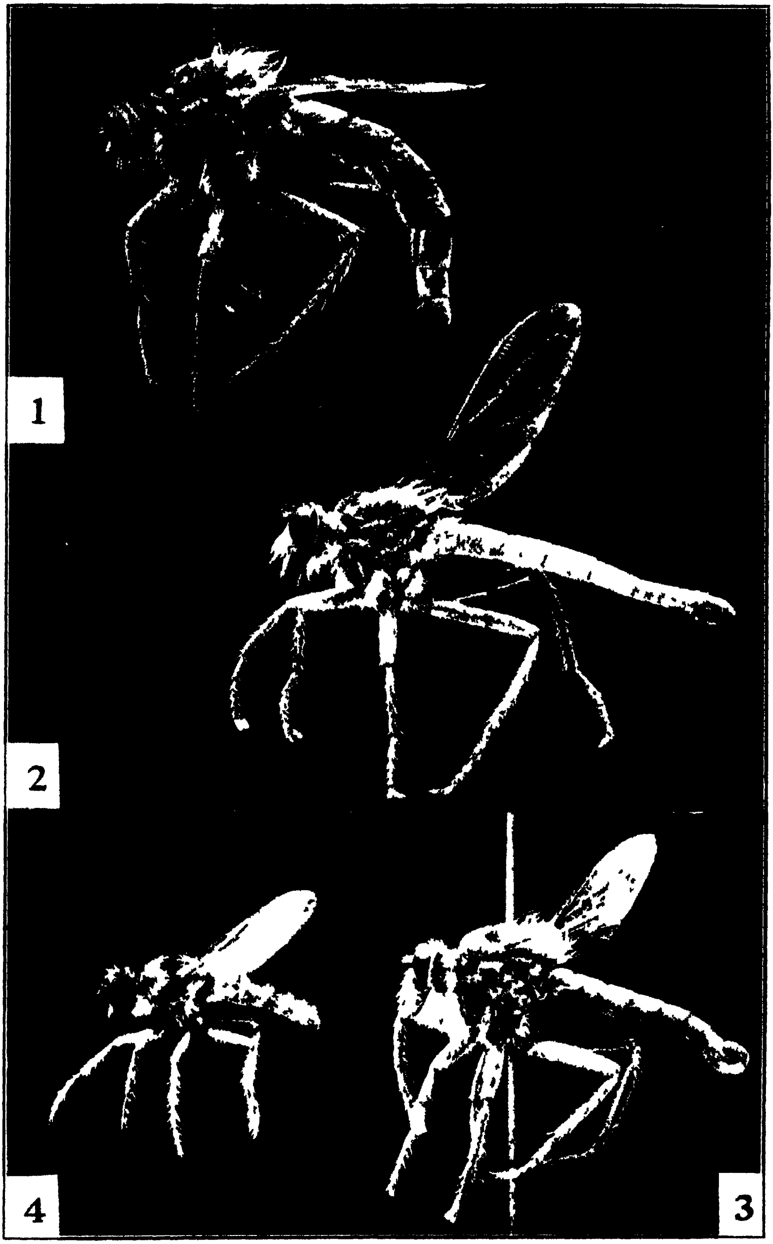
BACK ON DIPTERA.



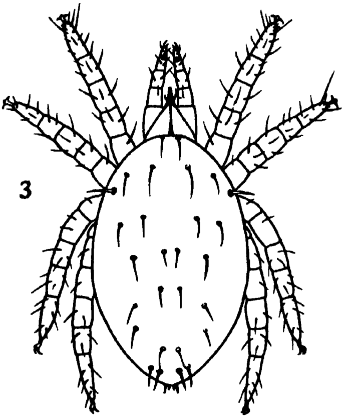
BACK ON DIPTERA.

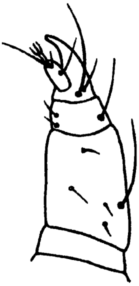


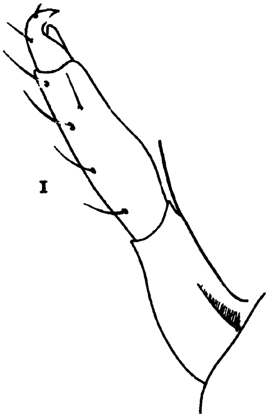
BACK ON DIPTERA.

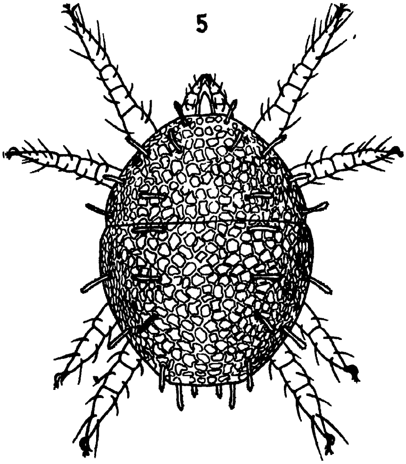


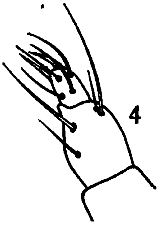
BACK ON DIPTERA.


3

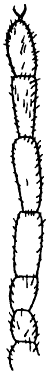

6


1

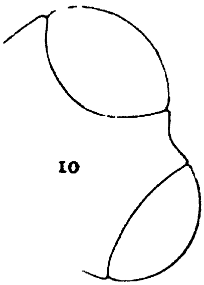

5


4

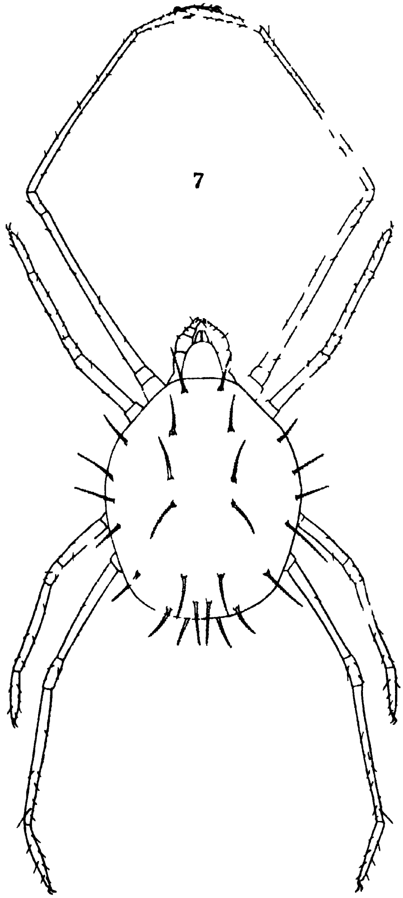
EWING ON NEW ACARINA.



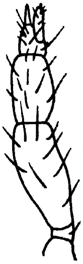
8



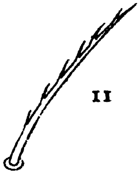
10



7

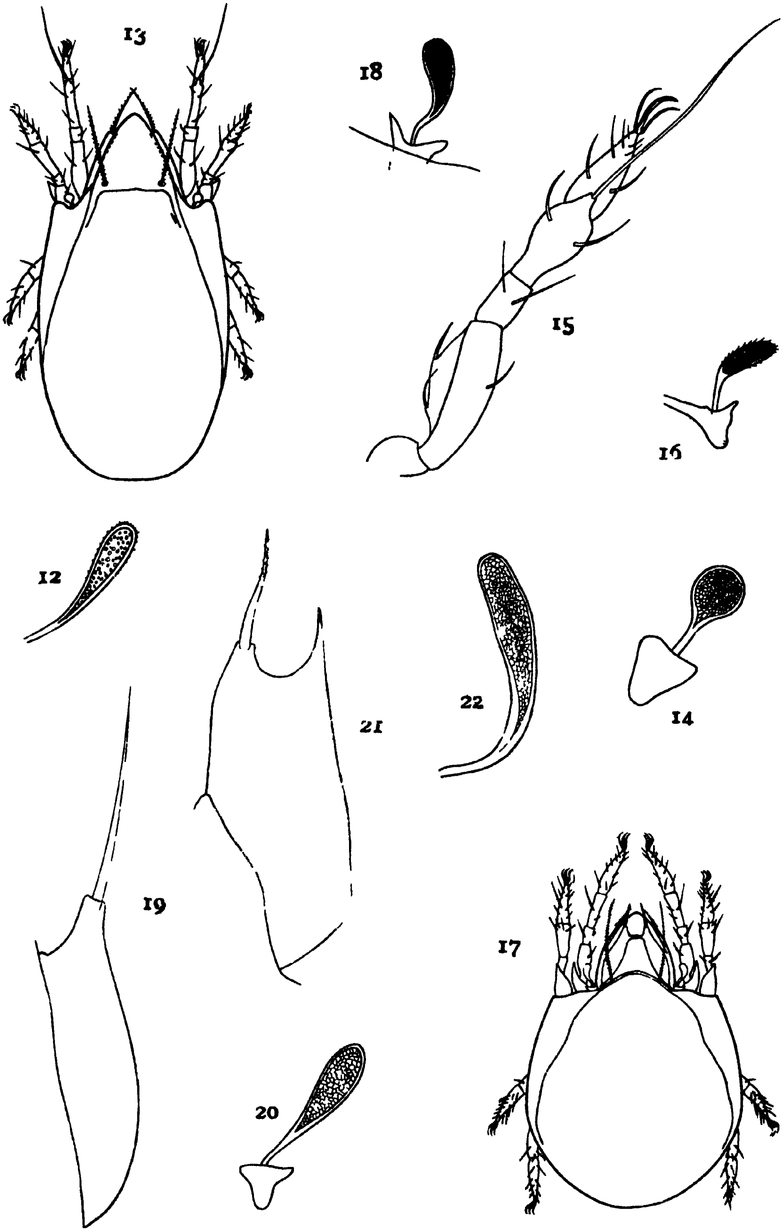


9



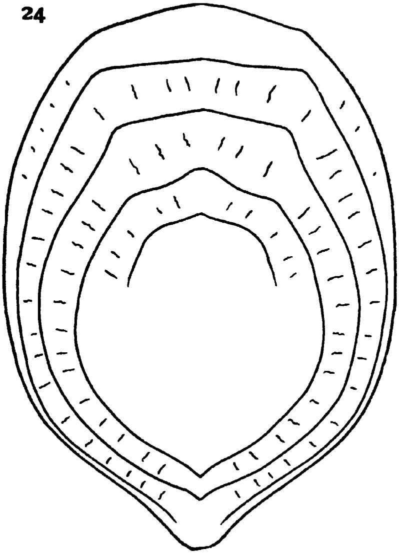
11

EWING ON NEW ACARINA

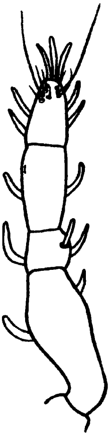


EWING ON NEW ACARINA

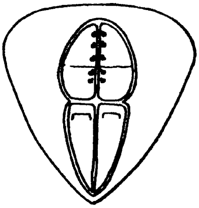
24



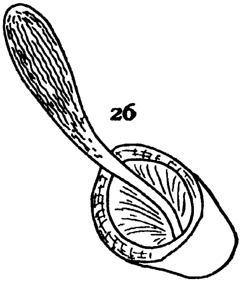
23



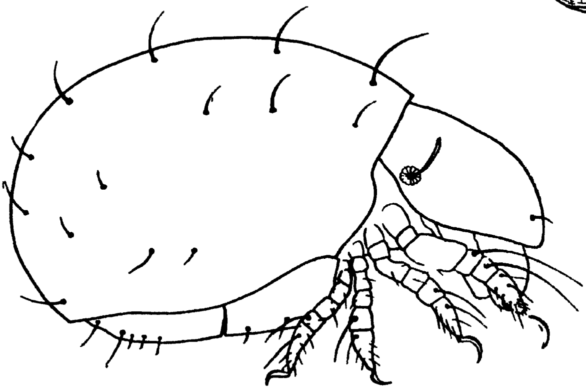
25



26



27



EWING ON NEW ACARINA.